99 CHANNEL STEREO SATELLITE RECEIVER

SAT4620

A-600

SERVICE MANUAL

FEATURES

- MULTI OSD (GERMAN, ENGLISH, SPANISH, FRENCH)
- 99 PROGRAMABLE CHANNELS
- 19 AUDIO SUBCARRIER PRESETS
- 9 FAVORITE CHANNELS
- POLARIZER INTERFACE (FERRITE & LNBF)
- AUDIO & VIDEO PLL TUNING
- AUDIO VOLUME & MUTE
- ANTENNA A/B SWITCH
- 1750/2000/2050MHz TUNER (OPTION)
- 2 SCART SOCKET (TV/VCR, DECODER)
- 2 AUDIO STEREO OUTPUTS
- VIDEO CONTRAST
- SIGNAL LEVEL CHECKING
- NON-VOLATILE MEMORY REGARDLESS OF POWER FAILURE
- FULL FUNCTION INFRARED REMOTE CONTROL

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1. SPECIFICATIONS

IF — SECTION

• FREQUENCY	950MHz ~ 1750/2000/2050MHz
• IMPEDANCE	75 Ohm
• INPUT LEVEL	−60 ~ −30dBm
• IF FREQUENCY	479.5MHz
• BANDWIDTH	27MHz
• THRESHOLD	BETTER THAN 7dB C/N
• AFT	±7MHz
• TUNNING	PLL FREQUENCY SYNTHESIZED
• LNB POWER	+18V Fix, +14V Fix 300mA MAX (For DUAL BAND LNB) +18V/+14V Toggle Mode (For Marconi LNB)
• INPUT CONNECTOR	F-TYPE FEMALE

VIDEO — SECTION

• DE-EMPHASIS	CCIR REC. 405-1 (625 LINES)
• FREQUENCY RESPONSE	25Hz ~ 5.0MHz
• ENERGY DISPERSAL REJECT	40dB TYP.
• OUTPUT LEVEL	1Vp-p
• OUTPUT IMPEDANCE	75 Ohm
• POLARITY	NEGATIVE SYNCHRONIZED
• OUTPUT CONNECTOR	RCA PHONO JACK, SCART

BASEBAND OUTPUT

• DE-EMPHASIS	CCIR REC. 405-1 (625 LINES)
• BANDWIDTH	10MHz (−3dB)
• OUTPUT LEVEL	1Vp-p 75 Ohm
• OUTPUT CONNECTOR	RCA PHONO JACK, SCART

MAC OUTPUT

• DE-EMPHASIS	NONE (FLAT SIGNAL)
• BANDWIDTH	10MHz (−3dB)
• OUTPUT LEVEL	0.6Vp-p 75 Ohm
• OUTPUT CONNECTOR	RCA PHONO JACK

POLARIZATION CONTROL

• POLARIZER	FERRITE TYPE
• FERRITE DRIVE CURRENT	±80mA 50 Ohm/±50mA 75 Ohm (typ.)
• POLARITY	VER, HOR FORMATABLE/SWITCHABLE

AUDIO — SECTION

• SUBCARRIER FREQUENCY	MONO: 5.5 ~ 8.8 MHz STEREO: (L)5.5 ~ 8.8MHz (R)5.68 ~ 8.98MHz *180KHz STEP FIXED BETWEEN LEFT AND RIGHT IN STEREO MODE
• TUNNING	PLL FREQUENCY SYNTHESIZED
• MODE	MONO/STEREO
• BANDWIDTH	280KHz/150KHz
• DE-EMPHASIS	50μs/J17/ADAPTIVE
• AUDIO PRESET	A1 (5.8MHz) A2 (6.5MHz) A3 (6.6MHz) A4 (6.65MHz) A5 (6.8MHz) A6 (7.02MHz) A7 (7.20MHz) A8 (7.38MHz) A9 (7.56MHz) A10 (7.74MHz) A11 (7.92MHz) A12 (6.12, 6.30MHz) A13 (7.02, 7.20MHz) A14 (7.20, 7.38MHz) A15 (7.38, 7.56MHz) A16 (7.56, 7.74MHz) A17 (7.74, 7.92MHz) A18 (7.92, 8.10MHz) A19 (8.10, 8.28MHz)
• HARMONIC DISTORTION	1% MAX
• OUTPUT LEVEL	0dBm TYP.
• OUTPUT IMPEDANCE	600 Ohm UNBALANCED
• OUTPUT CONNECTOR	RCA PHONO JACK, SCART

RF MODULATOR

• CHANNEL	UHF 32 ~ 40 (PRESET AT 36)
• TYPE	PAL-B.G/I
• UHF OUTPUT LEVEL	75±4dBμ
• AERIAL ANTENNA INPUT	IEC FEMALE
• UHF OUTPUT	IEC MALE
• BUILT-IN T.S.G	

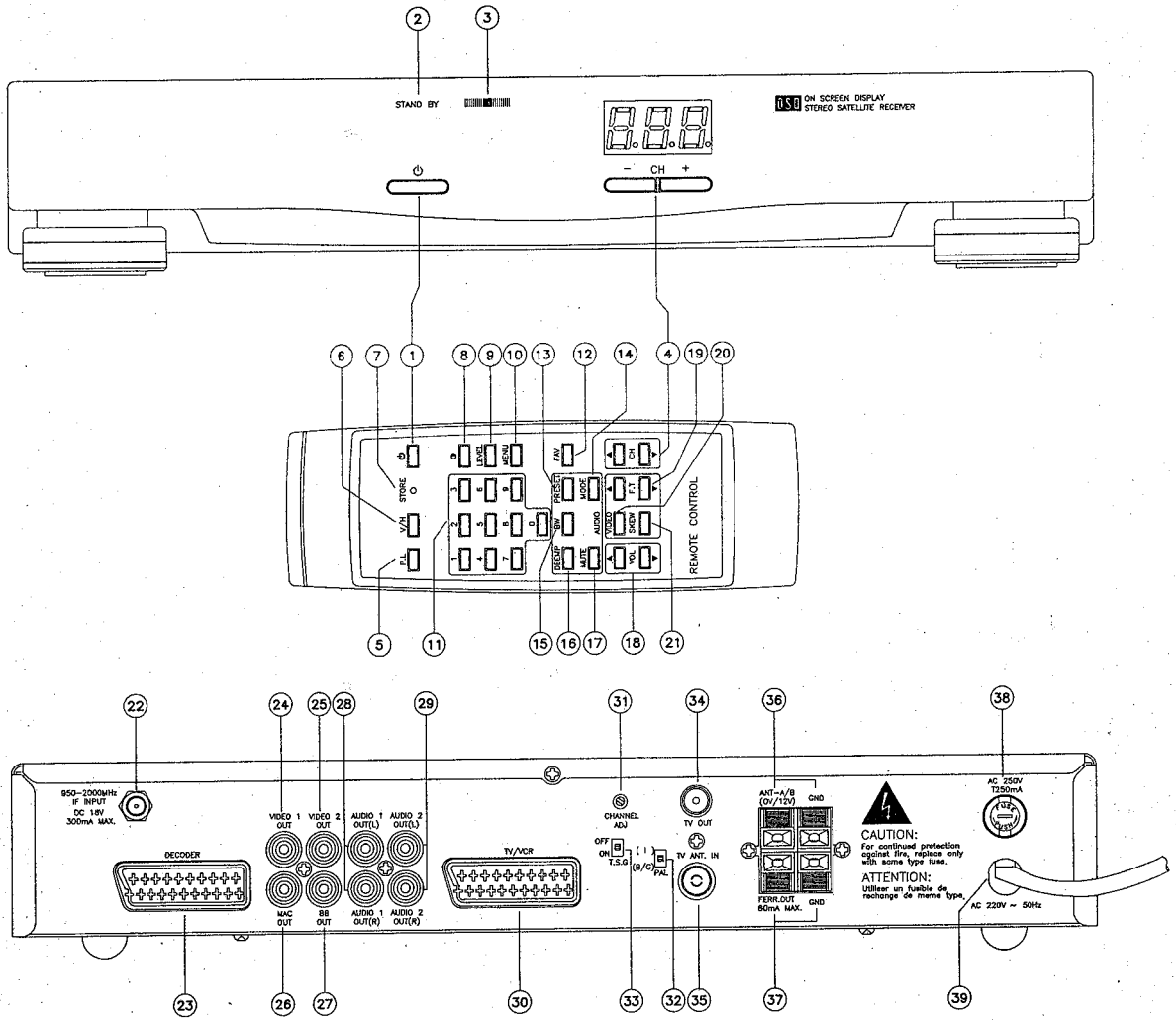
POWER REQUIREMENT

• SUPPLY VOLTAGE	220 VAC, 50Hz
• CONSUMPTION	35W MAX
• POWER CORD	CEE 2 PRONG TYPE

PHYSICAL/ENVIRONMENT

• OPERATING TEMPERATURE	0 ~ 40°C
• HUMIDITY	85%
• DIMENSIONS	380(W)x280(D)x60(H)mm

2. CONTROL FUNCTIONS



FRONT PANEL AND REMOTE CONTROL DESCRIPTIONS.

1./2. ⏻ /STAND BY

These buttons turn the receiver ON or OFF.
When the ⏻ is OFF (with the receiver plugged in), only the [STAND BY] LED will be lit with red color.
This indicates that the required power is continuously being supplied to the outdoor components and some receiver parts.
When the ⏻ is ON, the [STAND BY] LED will be lit with green color.

3. REMOTE SENSOR

This is the target point for the Infrared Remote Control signal. Above mentioned [STAND BY] LED will blink when it is receiving a signal from the Remote Control.

4. – CH +

These buttons are used to change channel Up or Down in sequency.

5. PARENTAL LOCK

This button is used to lock or unlock any channel.

6. V/H

This button selects the Vertical or Horizontal polarization format.
When the LNBF mode is selected, "V" indicates 14v and "H" indicates 18v, respectively.
When FSS or BBS is selected, "V" indicates the global vertical polarization value, and also "H" indicates the global horizontal polarization value, which they are settable by using the POLAR FORMAT of the MENU. So it is possible to get an optimum polarization values in accordance with the dish and polarizer mounting basis.

7. STORE

This recessed button is used to program informations into the receiver's memory for each channel.

8. CONTRAST (◑)

This button sets brightness of the picture; High, Middle and Low.
This is not stored for each channel.

9. LEVEL

This button is used to check the relative strength of the satellite signal being received. The signal strength level displays to the numeric value (0 to 99) on the picture.

10. MENU

This button provides access to the several parameters on the picture. (See. Page.16)

11. NUMERIC KEYPAD

These buttons, 0~9, are used for direct channel access.
They are also used to set up parameters of the MENU.

12. FAV

This button recalls Favorite Channels stored in advance. (up to 9 channels)

13. AUDIO PRESET

This button selects one of the 19 audio preset channels (A1 to A19) which are used frequently in the satellite field.

14. AUDIO MODE

This button selects MONO or STEREO audio mode.
When you choose STEREO, the receiver will automatically select a NARROW bandwidth and N.R de-emphasis.
Also you can tune the audio subcarrier frequency (5.5 to 8.8MHz) by combining the F.T ▲/▼ buttons.

15. AUDIO BANDWIDTH

This button selects the proper bandwidth for audio subcarriers; WIDE (280KHz), NARROW (150KHz).

16. AUDIO DE-EMPHASIS

This button is used to select from among three different de-emphasis values; 50μs, J-17, N.R, where N.R is the adaptive de-emphasis for noise reduction.

17. MUTE

This button is used to turn off the receiver's volume, and then return the volume to its original level.

18. VOLUME ▲/▼

These buttons can be used to adjust the audio level.
This is not stored for each channel.

19. FINE TUNE ▲/▼

These buttons are used to tune the video frequency, audio subcarrier frequency and polarization skew value by combining the 20. VIDEO, 14. AUDIO MODE and 21. SKEW buttons, respectively.

20. VIDEO

This button selects the video frequency tuning mode, then tune the F.T ▲/▼ buttons above mentioned. (950MHz to 2000MHz for each channel basis)

21. SKEW

This button selects the polarization skew tuning mode (which is only active in the FSS/BBS LNB mode), then tune the F.T ▲/▼ buttons above mentioned.
(501 to 599 for each channel basis)

BACK PANEL DESCRIPTIONS

22. IF INPUT

This IF connector will accept the satellite signal from the LNB. It will supply DC power to the LNB.

23. DECODER

This socket can be used to connect the some kind of decoders (such as Filmnet, Teleclub and RTL-4 Decoders), provides the raw video baseband audio left/right signals for the external decoders.

24. VIDE0 1 OUTPUT

This output supplies a clamped, filtered, de-emphasized video signal to an A/V monitor, or a TV SET fitted with a suitable connector.
The ON SCREEN DISPLY will be showed at this output connector.

25. VIDE0 2 OUTPUT

This output supplies the same signal of the VIDEO 1 OUT but the OSD will not be showed, so it is suitable to connect to a VCR for recording.

26. MAC OUTPUT

This output is intended to provide an unfiltered, unclamped, non de-emphasized baseband video to an external MAC decoder.

27. BASEBAND OUTPUT

This output is used to connect an external decoder that requires unfiltered, unclamped, de-emphasized baseband video.

28. AUDIO 1 OUTPUT

These outputs supply audio signal to an A/V monitor, or a TV SET fitted with a suitable connectors. If the receiver is tuned to the stereo signals, these outputs separate the left and right audio channels.

29. AUDIO 2 OUTPUT

These outputs supply the same signal of the AUDIO 1 OUTPUT, but these outputs work in conjunction with volume control.

30. TV/VCR

This socket is used to connect a TV SET or VCR. The advandage of this connection is to get the superior quality of the picture and sound reproduction.

31. UHF CHANNEL TUNING CONTROL

The output frequency of the RF modulator is preset at UHF CH36 at factory. In that case CH36 of your TV SET is already occupied by the terrestrial broadcasting or your VCR, you must choose a free channel between CH32 to 40 for the reception of the satellite programs.

32. MODULATOR SOUND CARRIER SWITCH

This switch selects between PAL B/G (5.5MHz) and PAL I (6.0MHz). Select PAL B/G for continental European transmissions, and PAL I for United Kingdom transmissions.

33. TEST SIGNAL GENERATOR SWITCH

This switch is to generate the built-in test pattern sigr.al.
Set this switch to ON position, and choose a free channel of your TV SET between CH32 and CH40, tune until two vertical bars appear on the screen.
And then set this switch to OFF position.

34. TV OUT

This connector provides the modulated RF signal for direct connection to a conventional TV SET or the aerial input of your VCR.

35. TV ANTENNA IN

This IEC connector is provided to connect the signal from either your terrestrial TV antenna or cable TV system. When the power of the receiver is switched off, the terrestrial or cable TV broadcasting is routed transparently to your TV SET through the TV out connector.

36. ANTENNA SELECT TERMINALS

These terminals (0V/12V, GND) are used to connect an external ANTENNA A/B switch for combining any two satellite signals.
You can select either ANTENNA A or B on screen display of pressing MENU button, this value is stored for each channel.

37. FERRITE POLARIZER TERMINALS

These terminals (FERR. OUT, GND) are used to connect the current controlled ferrite polarizer.

38. FUSE HOLDER

A time delay type 250mA, 250V fuse must be used for this fuse holder. If the fuse blows out repeatedly, the receiver should be repaired by qualified service person.

39. CEE TYPE POWER CORD

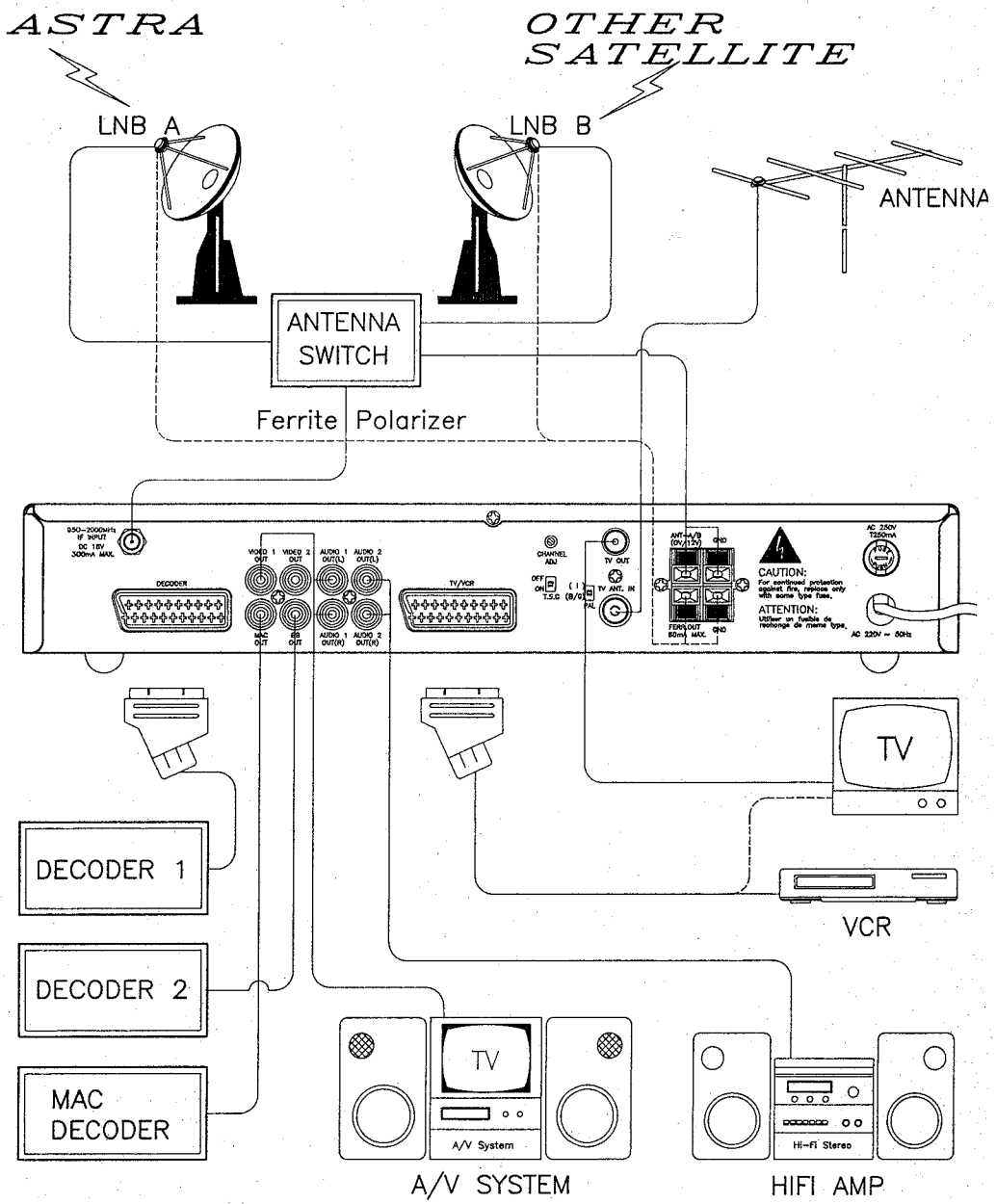
Connect to any 220V household AC outlet.

3. INSTALLATION

CAUTION:

BE SURE THE RECEIVER IS PROPERLY INSTALLED, BEFORE IT IS OPERATED. THE IMPROPER INSTALLATION WILL VOID THE WARRANTY. MAKE SURE THE CONNECTIONS ARE SEALED FROM THE MOISTURE TO AVOID A BREAK IN CONNECTIONS.

The necessary back panel connections on your satellite system are shown below. (This is a typical layout for the satellte receiver system with all its options)
All coaxial cables will attenuate or lose some of the signal.
How much is lost depends upon the type and length of the used cable. Consult your dealer for the most adequate and economical selection of cables.



ANTENNA COAXIAL CABLE

Several types of cables can be used to in a standard installation. To get the best performance from your system, it is important to use the recommendable cable.
All coaxial cables will attenuate or lose some of the signal. How much is lost depends upon the type and length of cable used. If there is a large amount of attenuation it will be necessary to use line amplifier.
Use a coaxial cable such as RG-6, RG-59. They have about 10dB or more of signal loss per every 100 feet of length.
After all the connections have been made, wrap them with electrical tape and weather-proof them with suitable sealant. Failure to keep water out of these connections will result in degraded performance and could void your LNB warranty.

EURO-AV LEADS

The EURO-AV leads minimize the loss of signal quality owing to the unnecessary remodulation and demodulation in your TV SET and/or VCR.
Apart from the general improvement in signal, the stereo sound can be transported well.

HI-FI INSTALLATION

If you want to connect directly to your Hi-Fi installation, then you can connect the RCA phono leads from the AUDIO 1 or 2 output connectors, where the AUDIO 2 OUTPUTS only incorporate a volume control.

POWER UP

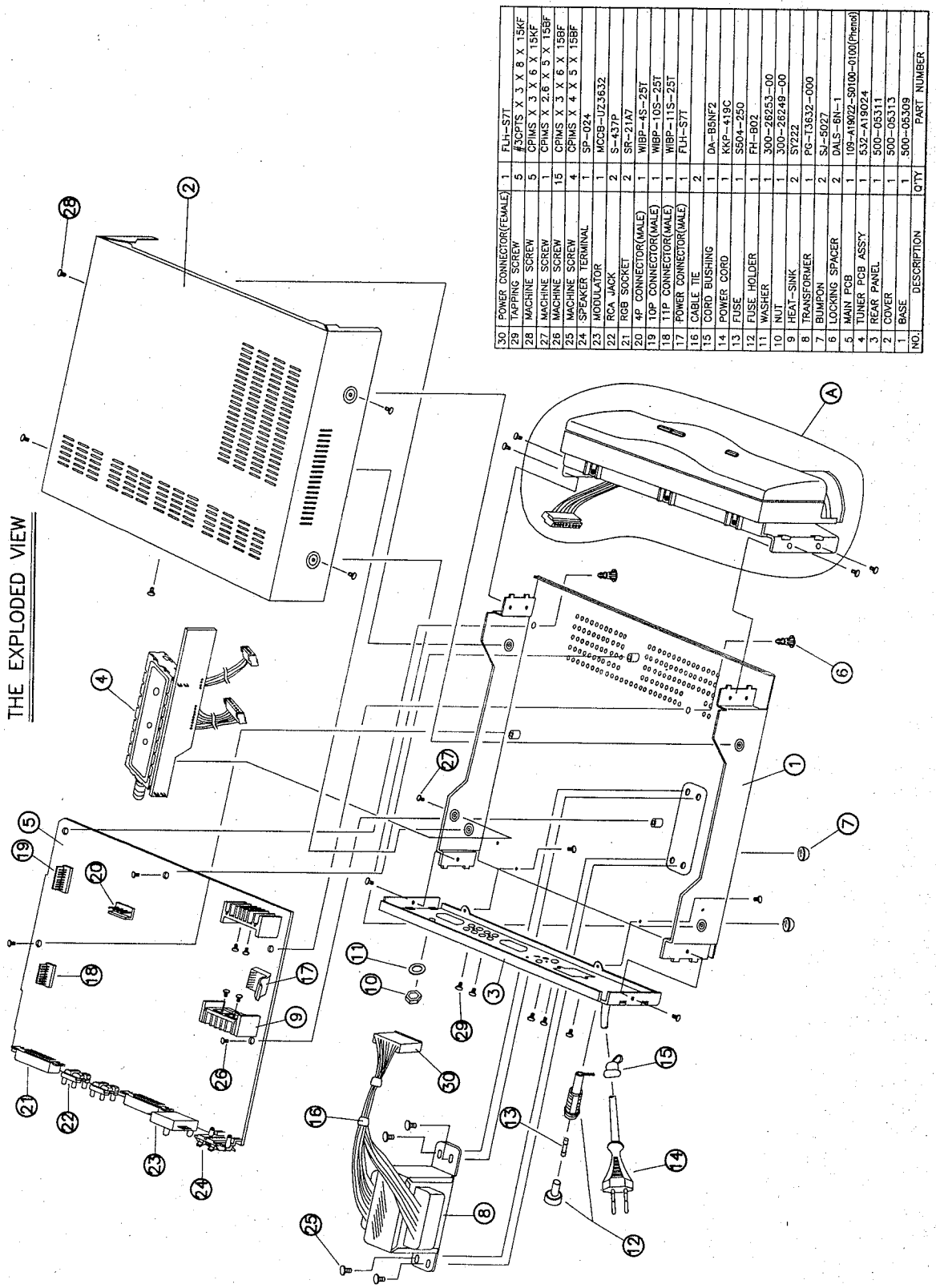
After all connections have been made, plug the receiver into a wall outlet. Install the batteries in the RCU (Remote Control Unit)

- Check to make sure the STAND BY LED is ON with red color.
- Turn the receiver ON by pressing the button, then STAND BY LED is lit with green color.
- Turn the TV SET on and turn the volume up.
- Tune the TV SET at UHF CH 36.

SETTING THE TV CHANNEL

If the receiver is connected to the antenna input of the TV SET, the channel selector of the TV must be tuned for the output channel of the receiver (CH32~40).
To facilitate the finding of the right channel, the receiver has a built-in T.S.G function, which gives a test pattern (black and white bars) when the channel is correctly tuned. Set the switch to ON during the adjustment, and to the OFF position when the TV SET is tuned to the receiver.

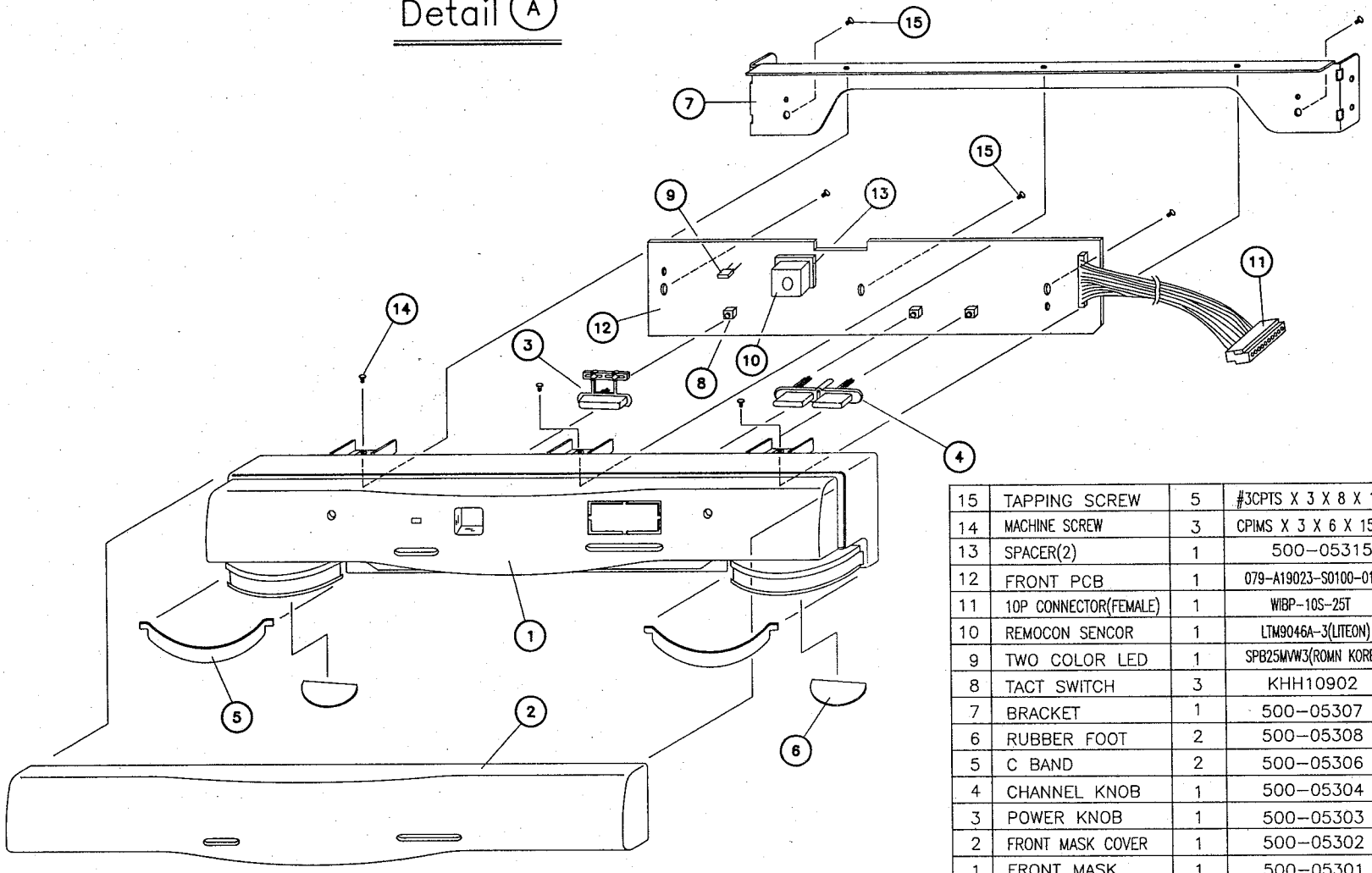
4. THE EXPLODED VIEW



NO.	DESCRIPTION	Q'TY	PART NUMBER
30	POWER CONNECTOR(FEMALE)	1	FLH-S7T
29	TAPPING SCREW	5	#3CPTS X 3 X 8 X 15KF
28	MACHINE SCREW	5	CPIMS X 3 X 6 X 15KF
27	MACHINE SCREW	1	CPIMS X 2.6 X 5 X 15BF
26	MACHINE SCREW	15	CPIMS X 3 X 6 X 15BF
25	MACHINE SCREW	4	CPIMS X 4 X 5 X 15BF
24	SPEAKER TERMINAL	1	SP-024
23	MODULATOR	1	MCCB-UZ3632
22	RCA JACK	2	S-437P
21	RGB SOCKET	2	SR-21A7
20	4P CONNECTOR(MALE)	1	WIBP-4S-25T
19	10P CONNECTOR(MALE)	1	WIBP-10S-25T
18	11P CONNECTOR(MALE)	1	WIBP-11S-25T
17	POWER CONNECTOR(MALE)	1	FLH-S7T
16	CABLE TIE	2	
15	CORD BUSHING	1	DA-B5NF2
14	POWER CORD	1	KKP-419C
13	FUSE	1	S504-250
12	FUSE HOLDER	1	FH-B02
11	WASHER	1	300-26253-00
10	NUT	1	300-26249-00
9	HEAT-SINK	2	SY222
8	TRANSFORMER	1	PG-T3632-000
7	BUMPON	2	SJ-5027
6	LOCKING SPACER	2	DALS-6N-1
5	MAIN PCB	1	109-A19022-S0100-0100(Phenol)
4	TUNER PCB ASS'Y	1	532-A19024
3	REAR PANEL	1	500-05311
2	COVER	1	500-05313
1	BASE	1	500-05309

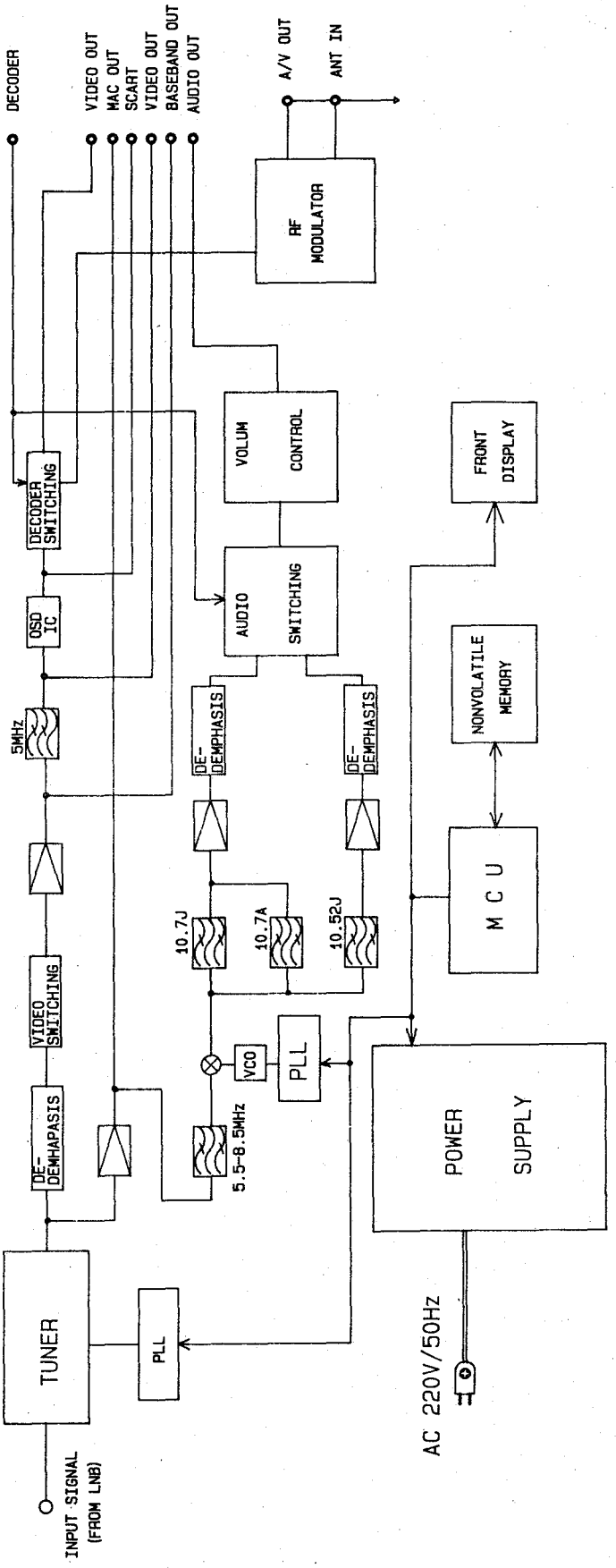
A-600 DETAIL

Detail (A)

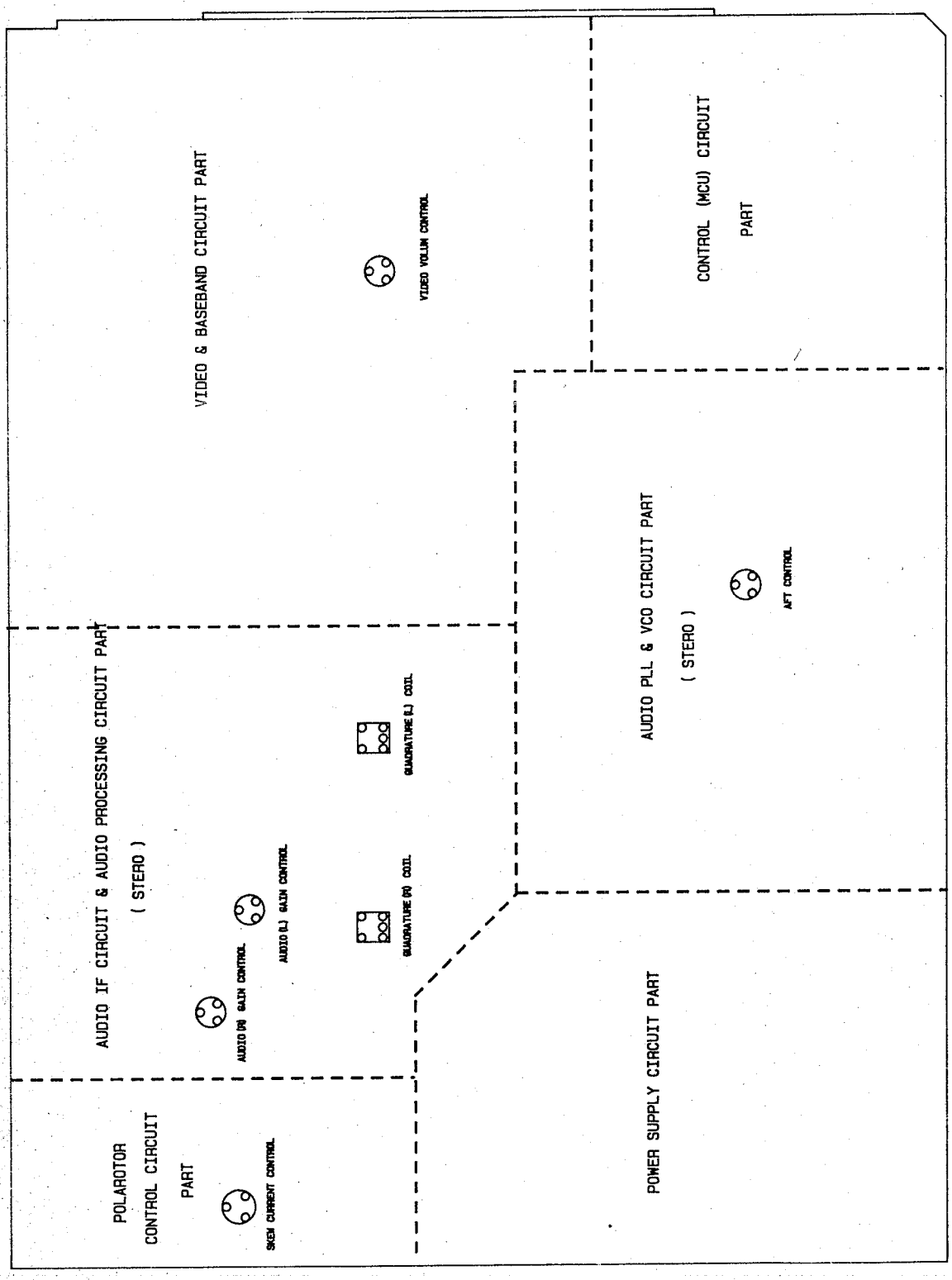


No.	DESCRIPTION	Q'TY	PART NUMBER
15	TAPPING SCREW	5	#3CPTS X 3 X 8 X 15BF
14	MACHINE SCREW	3	CPIMS X 3 X 6 X 15BF
13	SPACER(2)	1	500-05315
12	FRONT PCB	1	079-A19023-S0100-0100
11	10P CONNECTOR(FEMALE)	1	WIBP-10S-25T
10	REMOCON SENCOR	1	LTM9046A-3(LITEON)
9	TWO COLOR LED	1	SPB25MVW3(ROMN KOREA)
8	TACT SWITCH	3	KHH10902
7	BRACKET	1	500-05307
6	RUBBER FOOT	2	500-05308
5	C BAND	2	500-05306
4	CHANNEL KNOB	1	500-05304
3	POWER KNOB	1	500-05303
2	FRONT MASK COVER	1	500-05302
1	FRONT MASK	1	500-05301

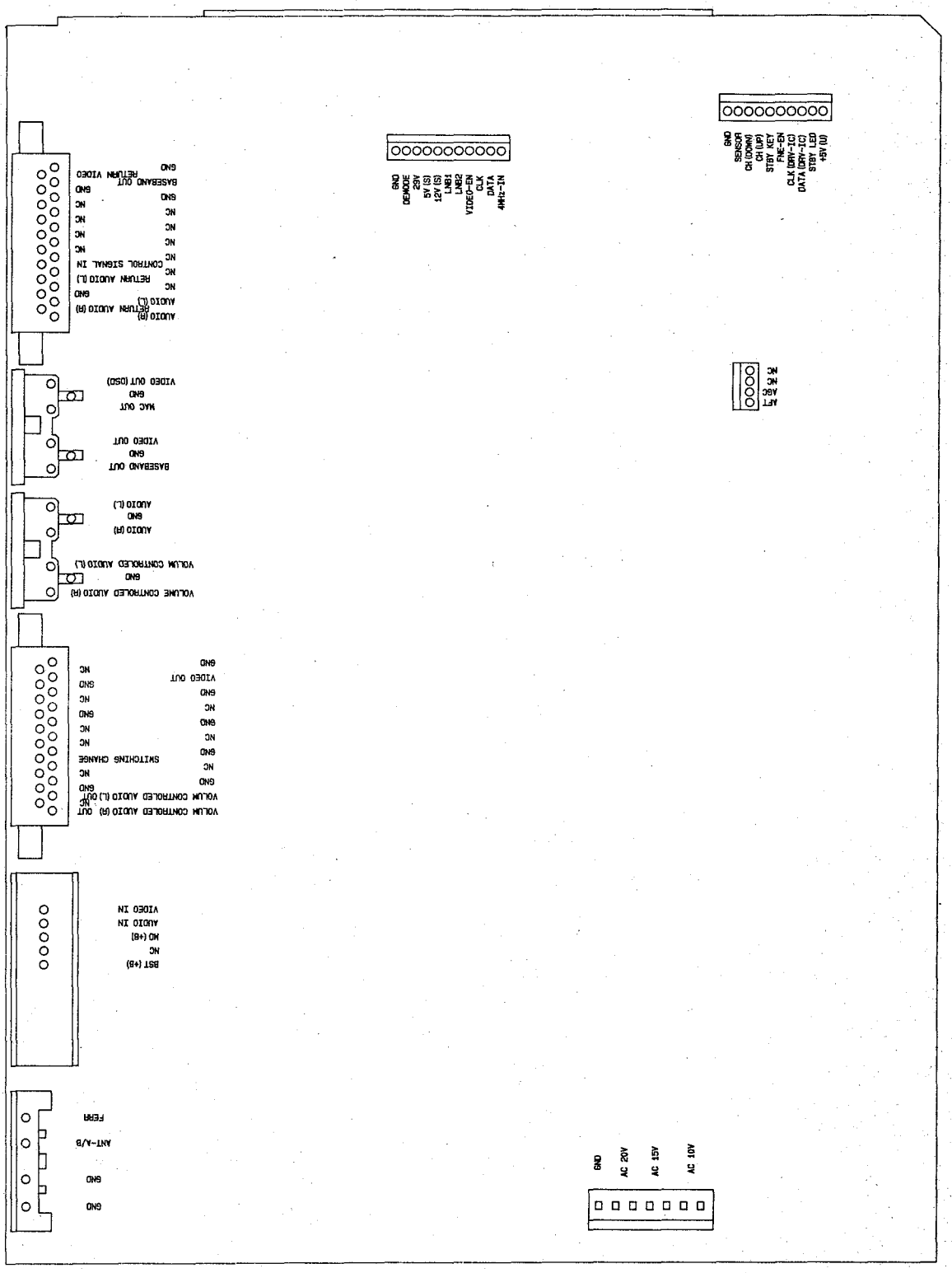
5. A-600 BLOCK DIAGRAM



6. A-600 MAIN PCB CONFIGURATION & ADJUSTMENT POINT

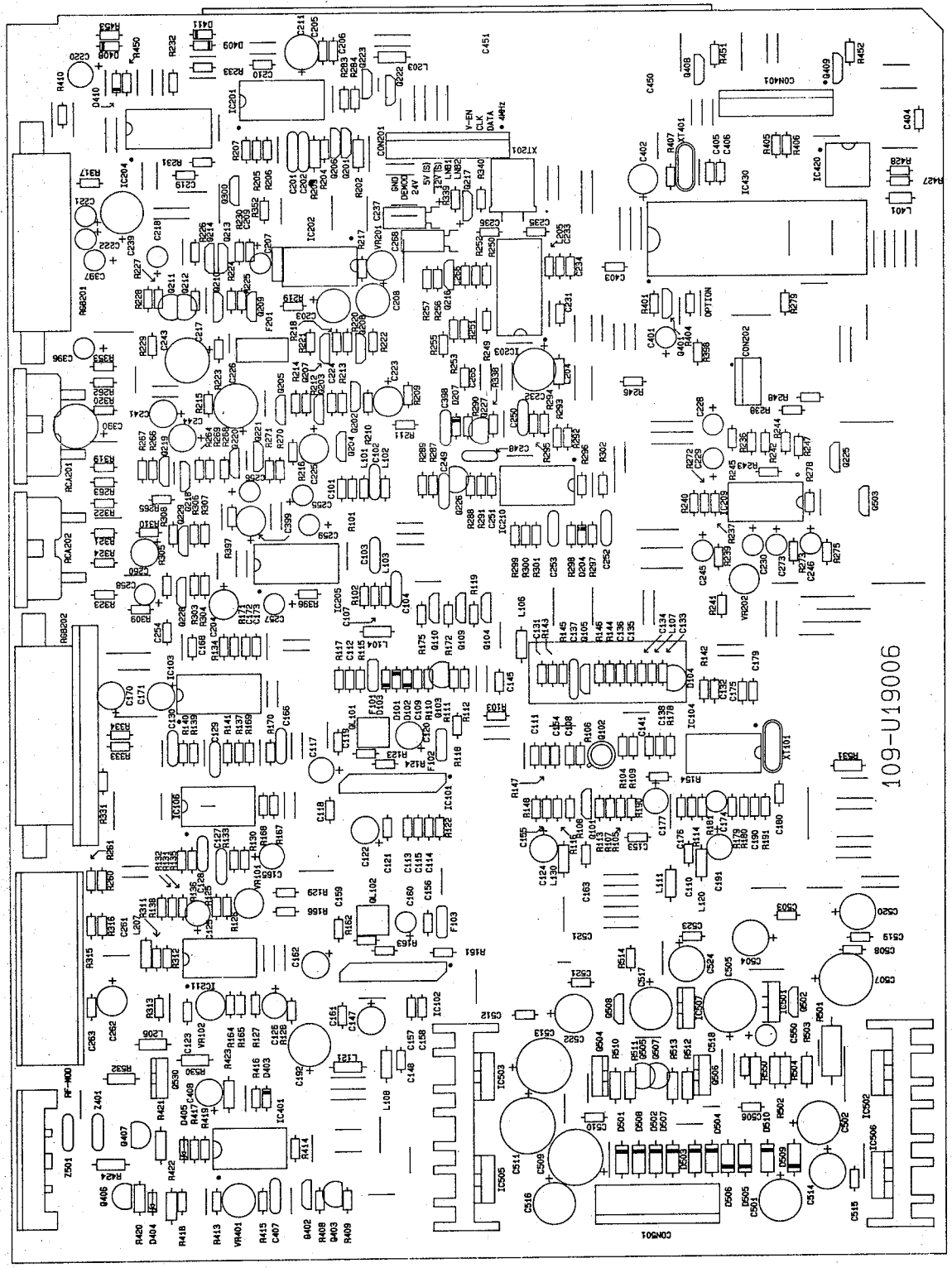


7. CONNECTOR PIN CONNECTION

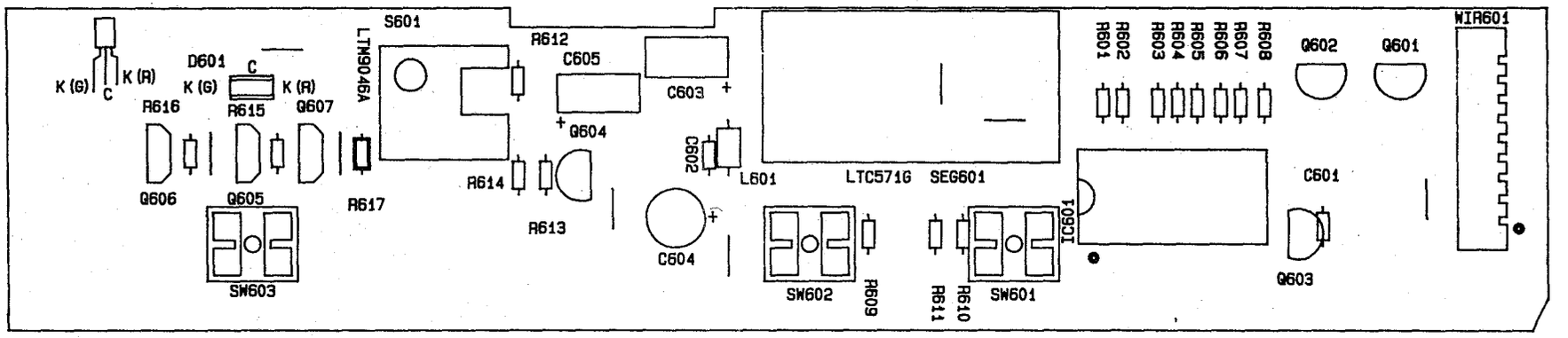


8. ASS'Y MAP (TOP VIEW)

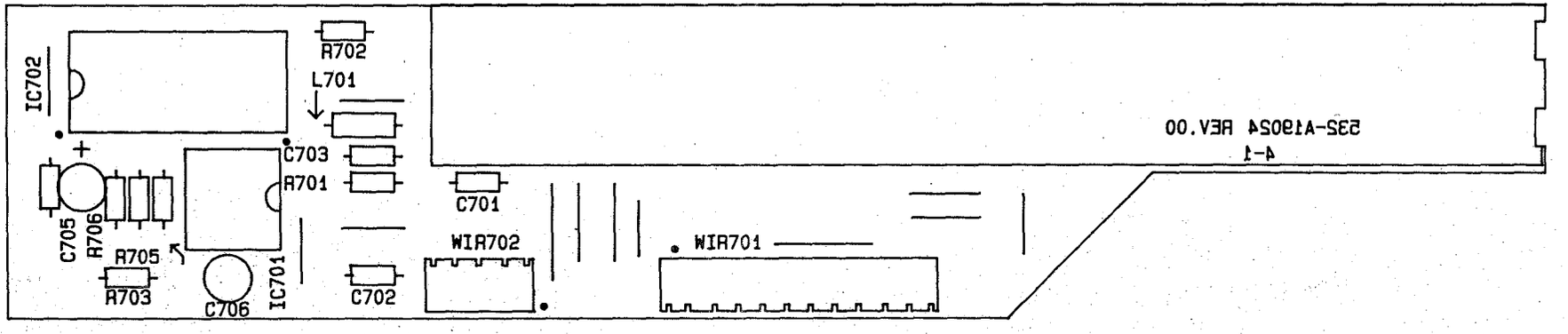
<MAIN PCB>



A-600 <FRONT PCB A'SSY MAP>



<TUNER PCB A'SSY MAP>



9. A-600 CIRCUIT OPERATION

POWER SUPPLY

- **+29V** : This voltage is used for Video PLL Circuit, and obtained by adding IC506 (7805 Regulator IC) output to IC501(7824 Regulator IC).
- **+14/18V** : This voltage is used for LNB, and consisted of R502-R504, Q502 and IC502 (Adjustable voltage & current Regulator).
  LNBF Mode → 14/18V Selection
  FSS Mode → 14V Fixed
  BBS Mode → 18V Fixed
  This 14/18V selection is made to the state of R504 and R502 (connected to Ground or open). When R504 and Q502 are connected to Ground, the LNB voltage made and when opened, the LNB voltage 18V is made.
- **+12V(S)** : This switched voltage is fed into the Tuner, Audio and Video circuit when the power on.
- **+5V(S)** : This switched voltage is fed into the Tuner, PLL circuit and SKEW control circuit when the power on.
- **+5V(U)** : This unswitched voltage is fed into Front circuit, RF Modulator MCU and MCU peripheral circuit even if the power off.
- **−5V(U)** : This unswitched voltage is fed into the SKEW control circuit even if the power off.
- **ON/STBY** : Power ON/OFF control.
  — ON: All Power "ON"
  — STBY: Only unswitched Power "ON"

MCU & SKEW CONTROL CIRCUIT

- **MCU and Peripheral Circuit**

MCU(IC430) operated by the XT401 (4.0MHz X-TAL) controls Audio and Video PLL, Front Display, and Remote signal receiveing, and so on.
It incorporates 16K memory capacity ROM inside.

- **EEPROM**

EEPROM is non-volatile memory, and keeps the program channel data, also keeps the information of updated data by user.

- **Skew Pulse Circuit**

The circuit consisting of Q402, Q403 and IC401-B converts the Pulse Width to the voltage.
The Pulse Width is varied by pressing the SKEW keys of Remote Control.
The circuit consisting of IC401-C, D403, and IC401-A controls the voltage values between D404 Anode and D405 Cathode, and according to these voltage values the output current for Ferrite polarizer is alternated. This output current was already set to "0"mA (by adjusting the VR401) at 75 ohm termination when SKEW value of the On-Screen is "550".

FRONT CIRCUIT

• **Remote Signal Receiving Circuit**

Remote signal sensor (S601) receives the infrared pulse (Data) from Remote Control, and sends it to MCU for processing the data.

• **Display Circuit**

This circuit consisting of Q605-Q607 and D601 receives the control signal from MCU and lights the STAND BY LED.

• **Key Input**

Front keys consisting of STAND BY, CH −/+ send the selected signal to the MCU.

VIDEO CIRCUIT

• **De-Emphasis Circuit**

The Baseband signal from Tuner is buffered with Q201, and de-emphasised by the circuit consisting of R202, R203, C201, C202 and Q206.

• **Contrast Control**

The de-emphasised signal is fed into the IC201 through R205, R206 and R207 according to the video level High, Mid and Low, respectively.

• **Video Low Pass Filter**

The de-emphasised signal is amplified through IC202 and filtered by F201.

• **Clamp Circuit**

The above video signal still has the low frequency triangular waveform, so clamp circuit is used to swamp out the low frequency triangular waveform that is added on the video signal during uplinking. For this purpose, Q211, Q212, C217 and the peripheral circuit are used.

• **Video Output Switching**

Video signal passed the clamp circuit IC204 and On-Screen IC (IC203) is fed into the RF Modulator, VIDEO OUT1 RCA JACK and TV/VCR scart socket through Q217. The other Video signal without On-Screen characters is fed into the VIDEO OUT2 RCA JACK through Q300.

• **RF Modulator and Peripheral Circuit**

- RF Modulator receives the video signal from the IC204 Analogue switch.
- The Audio signal from the IC204 is buffered with Q219 and Q220.
- This Audio signal is level-controlled by the IC203, Q228, Q229, IC211-B and passed to the audio input of RF Modulator.

• **Baseband Signal Output**

The signal passed de-emphasis circuit and amplifying circuit is also fed into the B/B OUT RCA JACK and Decoder scart socket through the Q208. This signal is a non-filtered signal for a Audio Processor or Filmnet Decoder, etc.

- **MAC Signal Output**

The MAC signal is amplified by Q202, Q203 and transferred to MAC OUT RCA JACK through Q205.

- **AFT(Automatic Fine Tuning) Circuit**

AFT circuit consists of IC209-A, IC209-C and IC209-D.
The outputs of AFT1 and AFT2 are "High" if the signal is fine-tuned by VR202 at the center frequency of required program.

- **Video PLL Circuit**

Video PLL circuit consists of IC701 and IC702.
This PLL circuit receives data from MCU and selects the Video channel by the VCO in tuner.

- **SYNC. Detect Circuit**
  - H-Sync. pulse is generated by Q226, Q227, D297 and IC210-C, then fed into On-Screen IC(IC203).
  - V-Sync. pulse is generated by IC210-B, then also fed into IC203.
  - Sync. Detect signal generated by IC210-A, IC210-D fed into the MCU. When there isn't the video signal from the dish or receive too weak sigal, the On-Screen IC will be switched internal mode with black screen.

- **On-Screen Circuit**

On-Screen circuit consists of IC203, XT201 and peripheral circuits.
The characters generated by above circuits superimpose on the video picture when some related keys are pressed.

AUDIO CIRCUIT

- **5.5MHz ~ 8.8MHz Band Pass Filter**

This circuit consists of L101-L103, C103-C104, R101 and R102, and is used to select only the Audio signal (except Video signal).

- **PLL & VCO Circuit**
  - IC104(PLL IC) receives data from MCU and checks the output of feedback oscillator. R179, R180, R181, R114 and C174 generates the output voltage according to the value of data. This voltage changes the capacitance of D104(Varactor Diode) in VCO circuit. The VCO circuit consists of D307, C335-C339, L308 and Q302.
  - The VCO oscillates various frequencies according to the voltage.

- **MIXER**

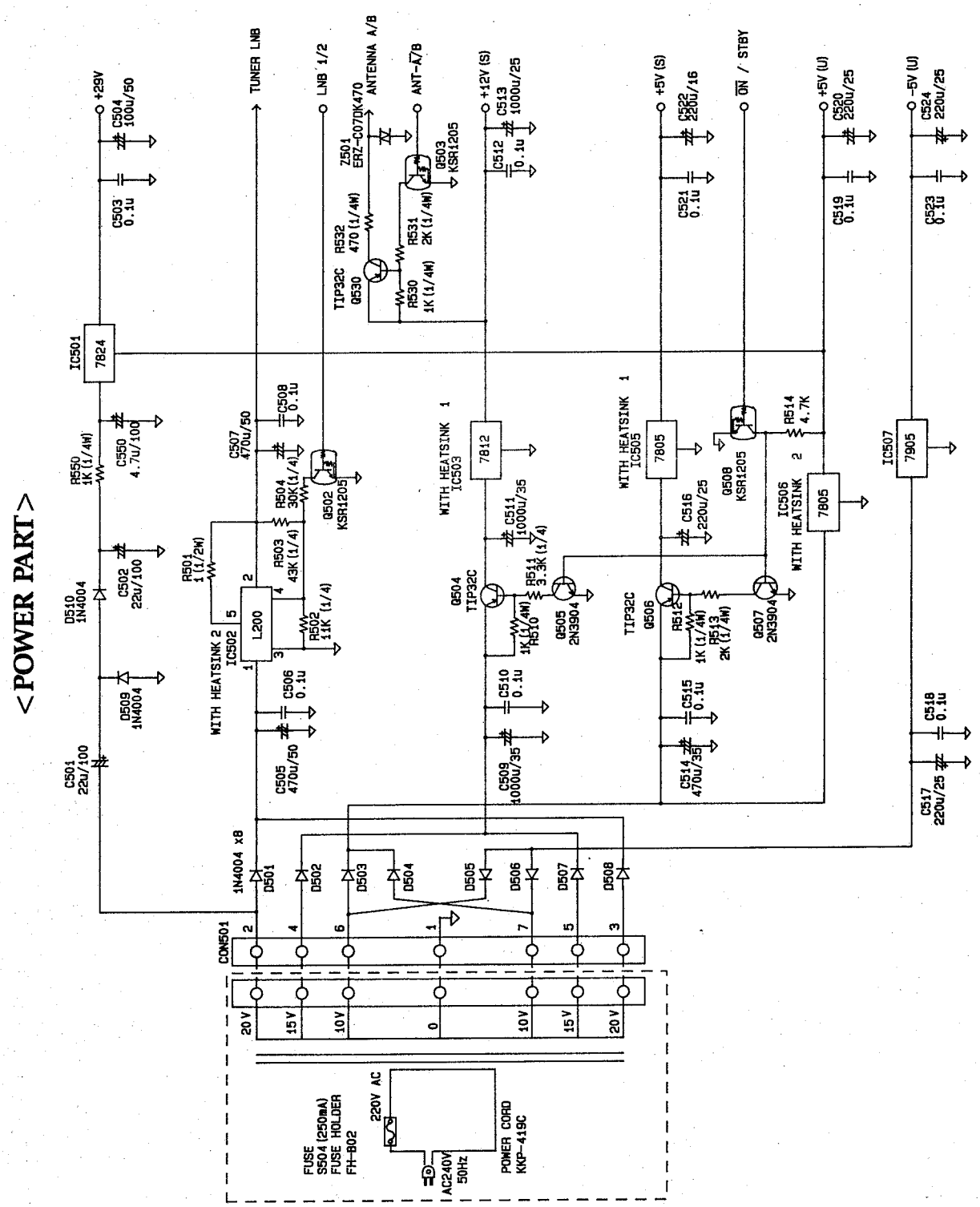
The filtered 5.5MHz-8.8MHz audio subcarrier is mixed with VCO frequency at Q102 (Dual gate FET).
This Mixer is used to get the Audio IF signal.

- **Bandwidth Selection Circuit**

  - This circuit consists of D101-D103, F101, F102 (10.7MHz Ceramic Filter), Q104 and Q103, and is used to select the left Audio IF signal with wide or narrow band.
  - In case of wide band, D101, F102 are selected, in opposite case D102, D103, F101 and F102 are selected.
  - Narrow bandwidth filter F103(10.52MHz Ceramic Filter) is fixed in the right channel and used at STEREO mode.

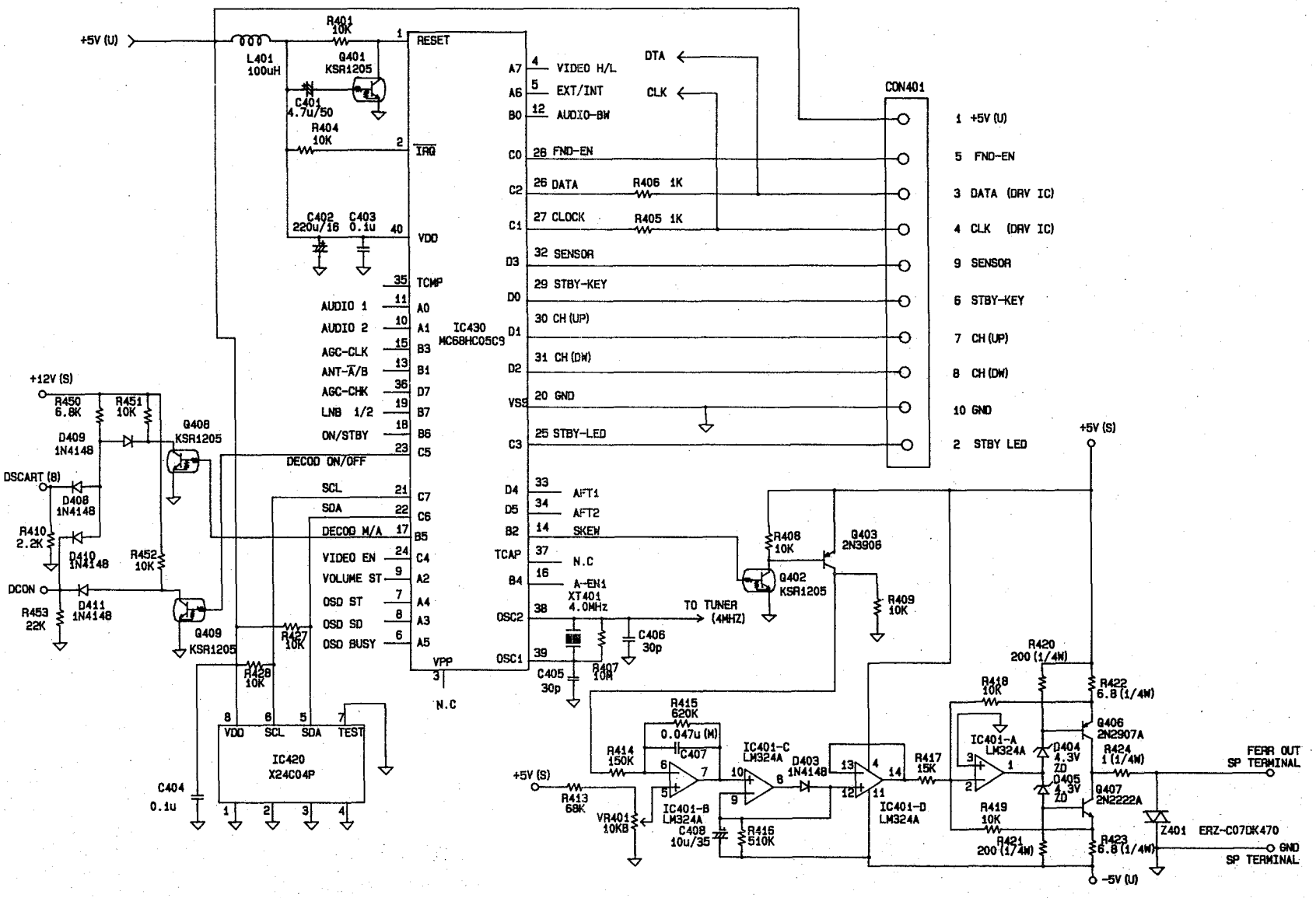
- **FM IF Circuit & AF Processing Circuit**

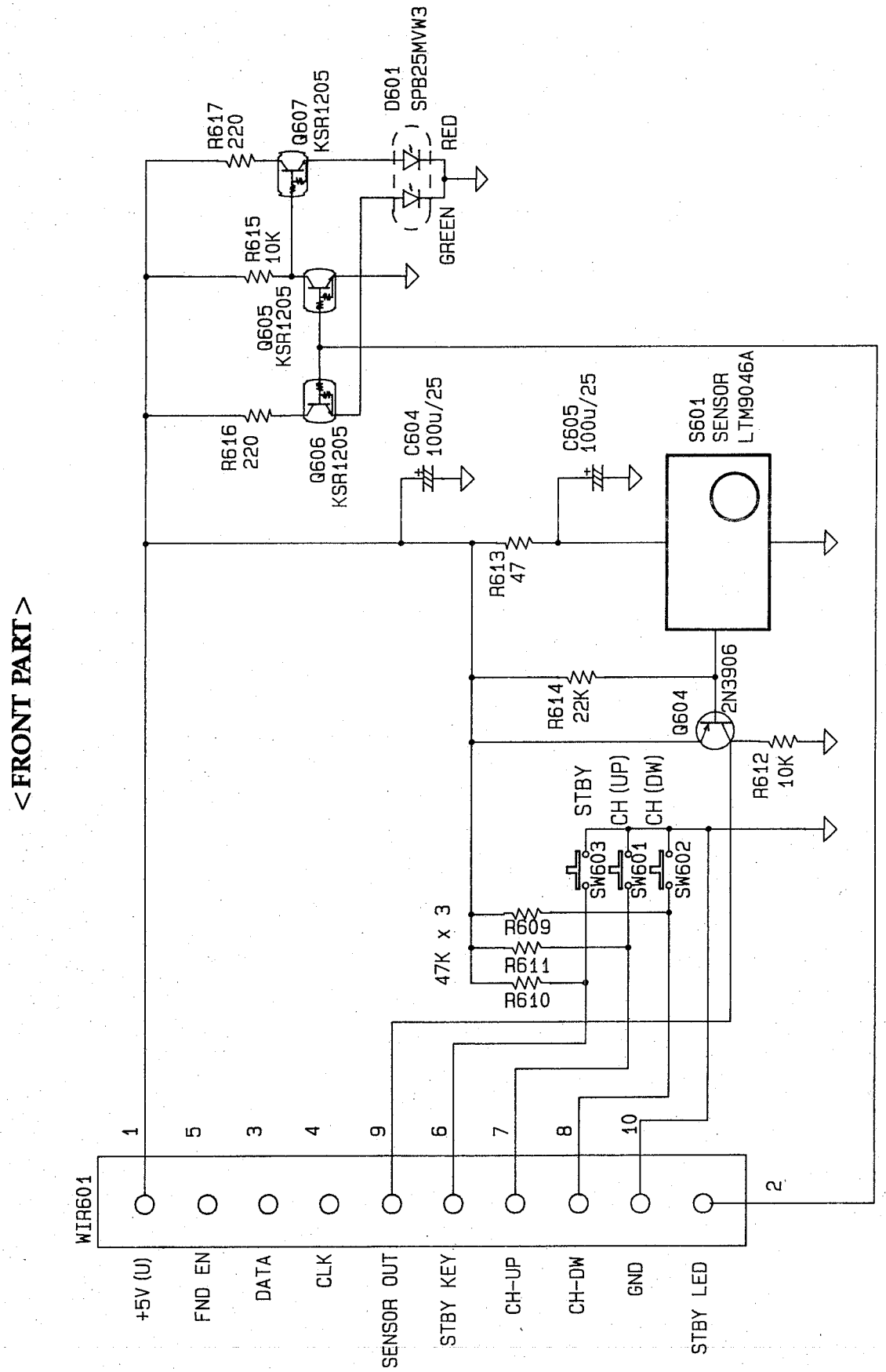
  This circuit amplifies the IF signal through IC101(FM IF IC) and peripheral circuit.
  The AF signal is obtained by Quadrature Detection circuit consisting of IC101, QL101 (for Left) and IC102, QL102 (for Right), where should adjust well QL101 and QL102 for obtaining the lowest audio harmonic distortion, respectively.
  This AF signal is amplified by IC211-A and the amplification gain is controlled by de-emphasised (using IC106-D, IC106-B, IC106-C and peripheral circuit).
  IC106-D is for the 50μs de-emphasis of MONO mode, IC106-C is for the J-17 de-emphasis of MONO mode, and IC106-B, IC106-A are for Noise Reduction Wegener compatible circuit of Left and Right Channel, respectively.


+29V
TUNER LNB
LNB 1/2
ANTENNA A/B
ANT-A/B
+12V (S)
+5V (S)
ON / STBY
+5V (U)
-5V (U)
IC501
7824
C504 100u/50
C503 0.1u
Z501 ERZ-C07DK470
Q503 KSR1205
R532 470 (1/4W)
R531 2K (1/4W)
R530 1K (1/4W)
Q530 TIP32C
C512 0.1u
C513 1000u/25
C522 220u/16
C521 0.1u
C520 220u/25
C519 0.1u
C524 220u/25
C523 0.1u
R550 1K (1/4W)
C550 4.7u/100
C507 470u/50
C508 0.1u
Q502 KSR1205
R504 30K (1/4)
R503 43K (1/4)
R501 1 (1/2W)
R502 11K (1/4)
WITH HEATSINK 2
IC502
L200
C506 0.1u
C505 470u/50
D510 1N4004
D509 1N4004
C502 22u/100
C501 22u/100
WITH HEATSINK 1
IC503
7812
C511 1000u/35
Q504 TIP32C
R511 3.3K (1/4)
R510 1K (1/4W)
Q505 2N3904
C510 0.1u
C509 1000u/35
WITH HEATSINK 1
IC505
7805
C516 220u/25
Q508 KSR1205
R514 4.7K
IC506
WITH HEATSINK
7805
IC507
7905
Q506 TIP32C
R512 1K (1/4W)
R513 2K (1/4W)
Q507 2N3904
C515 0.1u
C514 470u/35
C518 0.1u
C517 220u/25
1N4004 x8
D501
D502
D503
D504
D505
D506
D507
D508
CON501
20 V
15 V
10 V
0
10 V
15 V
20 V
FUSE
S504 (250mA)
FUSE HOLDER
FH-802
220V AC
AC240V
50Hz
POWER CORD
KKP-419C

<POWER PART>

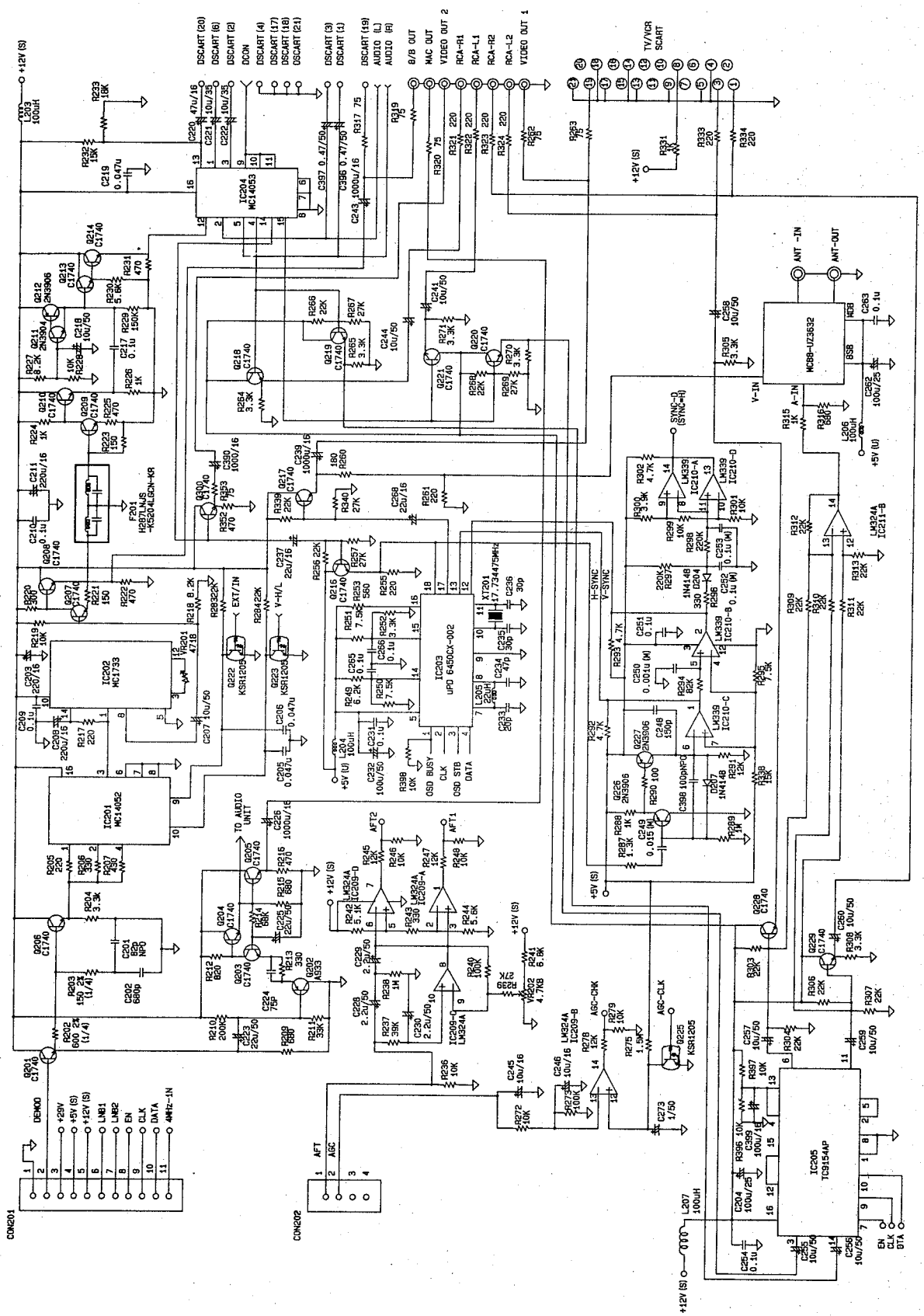
<CONTROL PART>



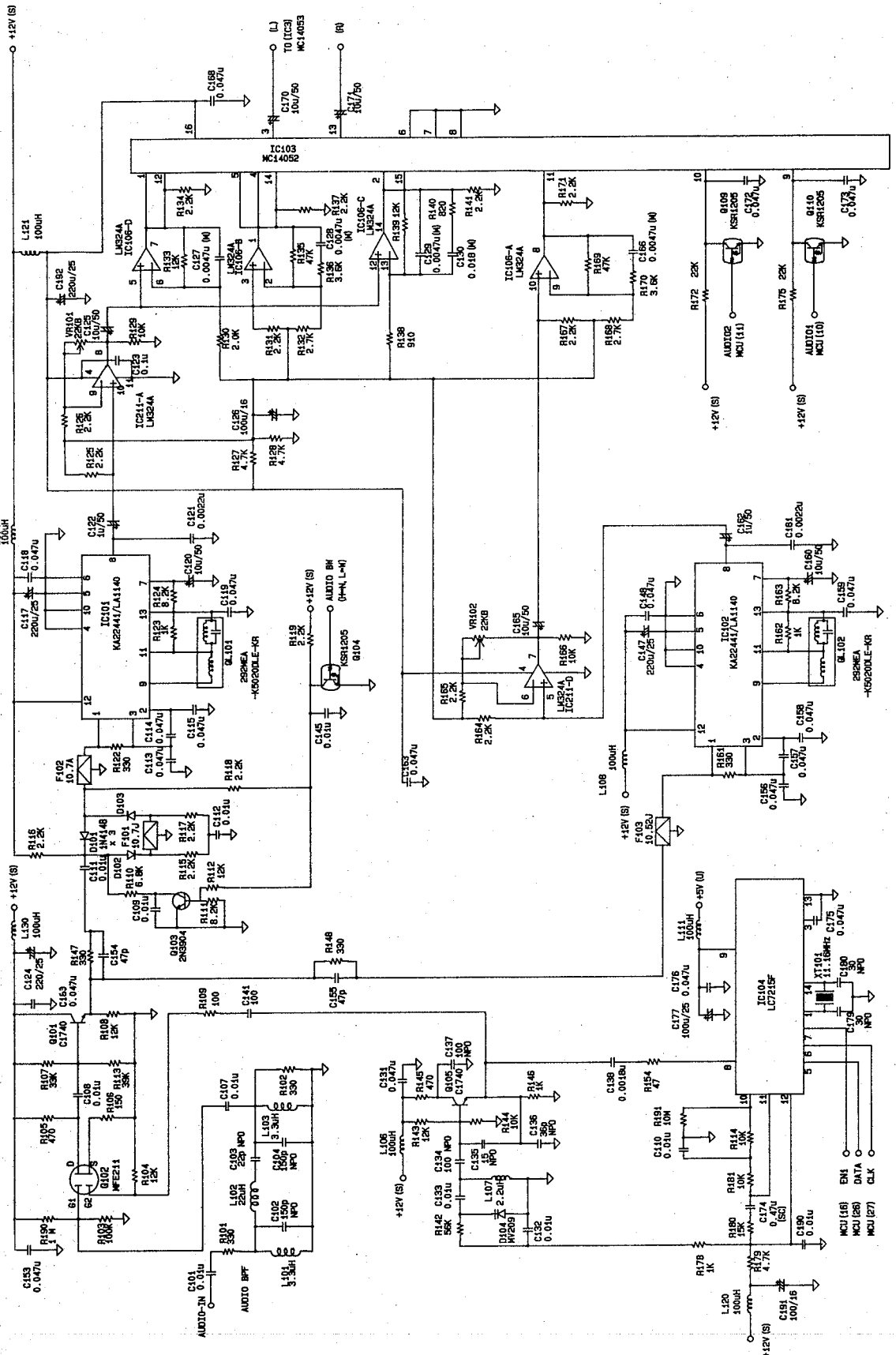

WIR601
+5V (U)
FND EN
DATA
CLK
SENSOR OUT
STBY KEY
CH-UP
CH-DW
GND
STBY LED
1
5
3
4
9
6
7
8
10
2
R617 220
Q607 KSR1205
D601 SPB25MW3
RED
GREEN
R615 10K
Q605 KSR1205
R616 220
Q606 KSR1205
C604 100u/25
C605 100u/25
S601 SENSOR LTM9046A
R613 47
R614 22K
Q604 2N3906
R612 10K
STBY
CH (UP)
CH (DW)
SW603
SW601
SW602
47K x 3
R609
R611
R610

<FRONT PART>

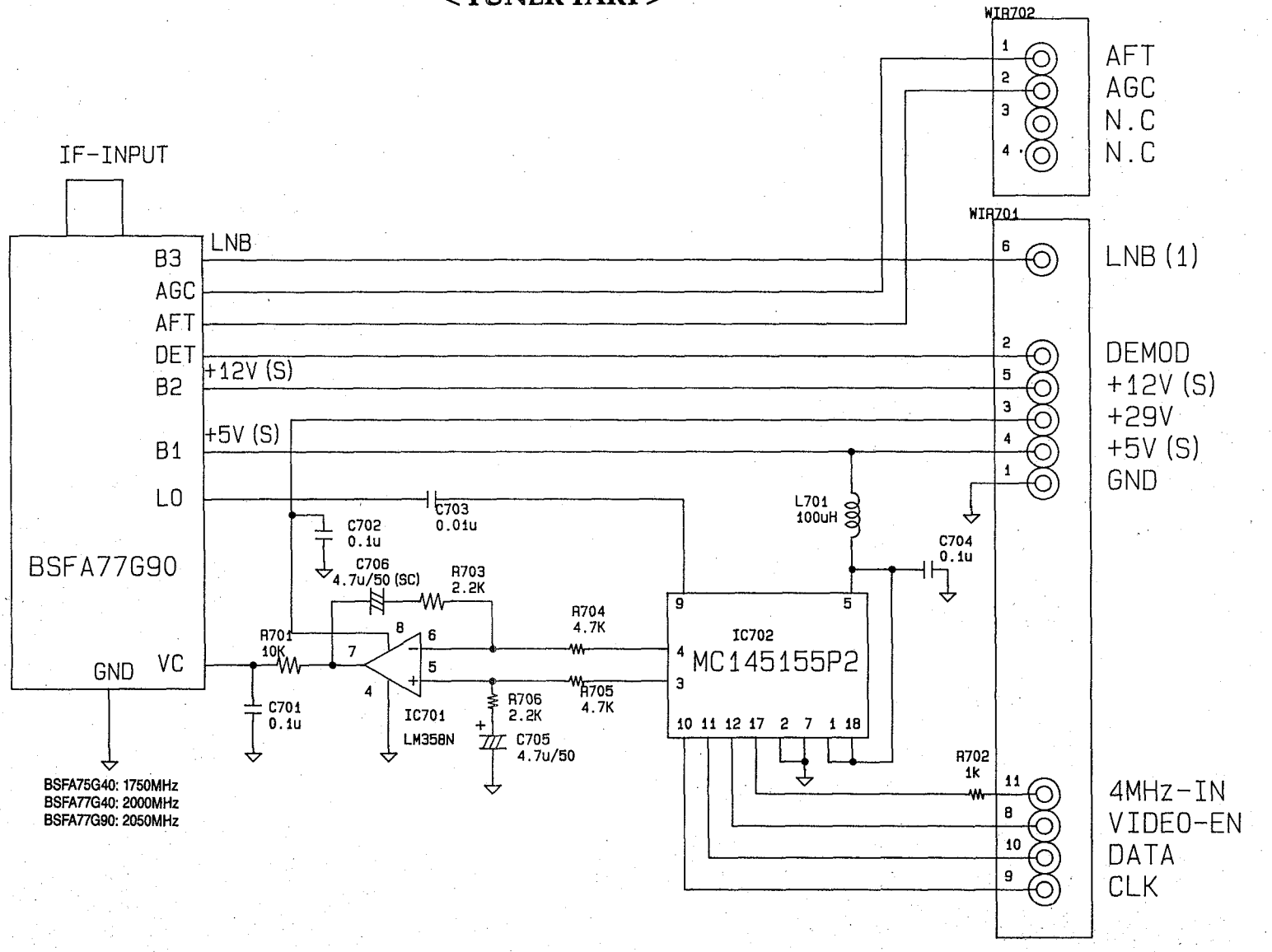
< VIDEO PART >



<AUDIO PART>



<TUNER PART>


WIR702
AFT
AGC
N.C
N.C
WIR701
LNB (1)
DEMOD
+12V (S)
+29V
+5V (S)
GND
4MHz-IN
VIDEO-EN
DATA
CLK
IF-INPUT
LNB
B3
AGC
AFT
DET
+12V (S)
B2
+5V (S)
B1
LO
BSFA77G90
GND
VC
BSFA75G40: 1750MHz
BSFA77G40: 2000MHz
BSFA77G90: 2050MHz
C702 0.1u
C703 0.01u
C706 4.7u/50 (SC)
R703 2.2K
R701 10K
C701 0.1u
IC701 LM358N
R704 4.7K
R705 4.7K
R706 2.2K
C705 4.7u/50
L701 100uH
C704 0.1u
IC702 MC145155P2
R702 1k

11. DBS RECEIVER A-600 PART LIST

109-A19022-0A00 MAIN PCB ASS'Y

Rep. No.	Part No.	Description	
R101	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R102	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R103	1932306	RD1/8PX100KJ	CARBON FILM RESISTOR
R104	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R105	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R106	1932357	RD1/8PX150J	CARBON FILM RESISTOR
R107	1932632	RD1/8PX33KJ	CABON FILM RESISTOR
R108	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R109	1724142	RD1/8PX100J	CARBON FILM RESISTOR
R110	1932799	RD1/8PX6.8KJ	CARBON FILM RESISTOR
R111	1932888	RD1/8PX8.2KJ	CARBON FILM RESISTOR
R112	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R113	1932667	RD1/8PX39KJ	CARBON FILM RESISTOR
R114	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R115	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R116	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R117	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R118	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R119	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R122	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R123	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R124	1932888	RD1/8PX8.2KJ	CARBON FILM RESISTOR
R125	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R126	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R127	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R128	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R129	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R130	1932535	RD1/8PX2.0KJ	CARBON FILM RESISTOR
R131	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R132	1858777	RD1/8PX2.7KJ	CARBON FILM RESISTOR
R133	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R134	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R135	1932748	RD1/8PX47KJ	CARBON FILM RESISTOR
R136	1932578	RD1/8PX3.6KJ	CARBON FILM RESISTOR
R137	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R138	2008519	RD1/8PX910J	CARBON FILM RESISTOR
R139	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R140	1724096	RD1/8PX820J	CARBON FILM RESISTOR
R141	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R142	2008491	RD1/8PX56KJ	CARBON FILM RESISTOR
R143	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R144	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R145	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R146	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R147	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R148	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R154	1932713	RD1/8PX47J	CARBON FILM RESISTOR

Rep. No.	Part No.	Description	
R161	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R162	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R163	1932888	RD1/8PX8.2KJ	CARBON FILM RESISTOR
R164	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R165	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R166	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R167	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R168	1858777	RD1/8PX2.7KJ	CARBON FILM RESISTOR
R169	1932748	RD1/8PX47KJ	CARBON FILM RESISTOR
R170	1932578	RD1/8PX3.6KJ	CARBON FILM RESISTOR
R171	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R172	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R175	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R178	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R179	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R180	1932373	RD1/8PX15KJ	CARBON FILM RESISTOR
R181	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R190	1938207	RD1/8PX1MJ	CARBON FILM RESISTOR
R191	1932322	RD1/8PX10MJ	CARBON FILM RESISTOR
R202	2008022	RN1/4PX600G	CARBON FILM RESISTOR
R203	2008015	RN1/4PX150G	CARBON FILM RESISTOR
R204	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R205	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R206	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R207	2015043	RD1/8PX430F	CARBON FILM RESISTOR
R209	1724118	RD1/8PX680J	CARBON FILM RESISTOR
R210	1933272	RD1/8PX200KJ	CARBON FILM RESISTOR
R211	1932632	RD1/8PX33KJ	CARBON FILM RESISTOR
R212	1724096	RD1/8PX820J	CARBON FILM RESISTOR
R213	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R214	1932829	RD1/8PX68KJ	CARBON FILM RESISTOR
R215	1724118	RD1/8PX680J	CARBON FILM RESISTOR
R216	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R217	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R218	1932888	RD1/8PX8.2KJ	CARBON FILM RESISTOR
R219	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R220	1932594	RD1/8PX300J	CARBON FILM RESISTOR
R221	1932357	RD1/8PX150J	CARBON FILM RESISTOR
R222	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R223	1932357	RD1/8PX150J	CARBON FILM RESISTOR
R224	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R225	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R226	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R227	1932888	RD1/8PX8.2KJ	CARBON FILM RESISTOR
R228	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R229	1932365	RD1/8PX150KJ	CARBON FILM RESISTOR
R230	1932764	RD1/8PX5.6KJ	CARBON FILM RESISTOR
R231	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R232	1932373	RD1/8PX15KJ	CARBON FILM RESISTOR
R233	1932438	RD1/8PX18KJ	CARBON FILM RESISTOR
R236	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R237	1932667	RD1/8PX39KJ	CARBON FILM RESISTOR

Rep. No.	Part No.	Description	
R238	1938207	RD1/8PX1MJ	CARBON FILM RESISTOR
R239	1933329	RD1/8PX27KJ	CARBON FILM RESISTOR
R240	1932306	RD1/8PX100KJ	CARBON FILM RESISTOR
R241	1932799	RD1/8PX6.8KJ	CARBON FILM RESISTOR
R242	1932756	RD1/8PX5.1KJ	CARBON FILM RESISTOR
R243	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R244	1932764	RD1/8PX5.6KJ	CARBON FILM RESISTOR
R245	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R246	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R247	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R248	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R249	2008484	RD1/8PX6.2KJ	CARBON FILM RESISTOR
R250	1932845	RD1/8PX7.5KJ	CARBON FILM RESISTOR
R251	1932845	RD1/8PX7.5KJ	CARBON FILM RESISTOR
R252	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R253	2008512	RD1/8PX560J	CARBON FILM RESISTOR
R255	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R256	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R257	1933329	RD1/8PX27KJ	CARBON FILM RESISTOR
R260	1932403	RD1/8PX180J	CARBON FILM RESISTOR
R261	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R262	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R263	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R264	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R265	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R266	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R267	1933329	RD1/8PX27KJ	CARBON FILM RESISTOR
R268	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R269	1933329	RD1/8PX27KJ	CARBON FILM RESISTOR
R270	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R271	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R272	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R273	1932306	RD1/8PX100KJ	CARBON FILM RESISTOR
R275	2008505	RD1/8PX1.5MJ	CARBON FILM RESISTOR
R278	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R279	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R283	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R284	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R287	1946242	RD1/8PX1.3KJ	CARBON FILM RESISTOR
R288	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R289	1938207	RD1/8PX1MJ	CARBON FILM RESISTOR
R290	1724142	RD1/8PX100J	CARBON FILM RESISTOR
R291	1932349	RD1/8PX12KJ	CARBON FILM RESISTOR
R292	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R293	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R294	2012523	RD1/8PX82KJ	CARBON FILM RESISTOR
R295	1932845	RD1/8PX7.5KJ	CARBON FILM RESISTOR
R296	1932616	RD1/8PX330J	CARBON FILM RESISTOR
R297	2008477	RD1/8PX220KJ	CARBON FILM RESISTOR
R298	2008477	RD1/8PX220KJ	CARBON FILM RESISTOR
R299	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R300	1932586	RD1/8PX3.9KJ	CARBON FILM RESISTOR

Rep. No.	Part No.	Description	
R301	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R302	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R303	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R304	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R305	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R306	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R307	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R308	1932543	RD1/8PX3.3KJ	CARBON FILM RESISTOR
R309	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R310	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R311	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R312	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R313	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R315	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R316	1724118	RD1/8PX680J	CARBON FILM RESISTOR
R317	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R319	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R320	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R321	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R322	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R323	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R324	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R331	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R333	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R334	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R338	1932373	RD1/8PX15KJ	CARBON FILM RESISTOR
R339	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R340	1933329	RD1/8PX27KJ	CARBON FILM RESISTOR
R352	1932705	RD1/8PX470J	CARBON FILM RESISTOR
R353	1932853	RD1/8PX75J	CARBON FILM RESISTOR
R396	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R397	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R398	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R401	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R404	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R405	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R406	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R407	1932322	RD1/8PX10MJ	CARBON FILM RESISTOR
R408	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R409	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R410	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R413	1932829	RD1/8PX68KJ	CARBON FILM RESISTOR
R414	1932365	RD1/8PX150KJ	CARBON FILM RESISTOR
R415	2008498	RD1/8PX620KJ	CARBON FILM RESISTOR
R416	1932772	RD1/8PX510KJ	CARBON FILM RESISTOR
R417	1932373	RD1/8PX15KJ	CARBON FILM RESISTOR
R418	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R419	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R420	0298441	RD1/4PX200J	CARBON FILM RESISTOR
R421	0298441	RD1/4PX200J	CARBON FILM RESISTOR
R422	0309591	RD1/4PX6.8J	CARBON FILM RESISTOR
R423	0309591	RD1/4PX6.8J	CARBON FILM RESISTOR

Rep. No.	Part No.	Description	
R424	0297232	RD1/4PX1J	CARBON FILM RESISTOR
R427	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R428	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R450	1932799	RD1/8PX6.8KJ	CARBON FILM RESISTOR
R451	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R452	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R453	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR
R501	0288250	RD1/2PX1J	CARBON FILM RESISTOR
R502	0294152	RD1/4PX11KJ	CARBON FILM RESISTOR
R503	0305952	RD1/4PX43KJ	CARBON FILM RESISTOR
R504	0302210	RD1/4PX30KJ	CARBON FILM RESISTOR
R510	0297275	RD1/4PX1KJ	CARBON FILM RESISTOR
R511	0301442	RD1/4PX3.3KJ	CARBON FILM RESISTOR
R512	0297275	RD1/4PX1KJ	CARBON FILM RESISTOR
R513	0301094	RD1/4PX2KJ	CARBON FILM RESISTOR
R514	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R530	0297275	RD1/4PX1KJ	CARBON FILM RESISTOR
R531	0301094	RD1/4PX2KJ	CARBON FILM RESISTOR
R532	0306592	RD1/4PX470J	CARBON FILM RESISTOR
R550	0297275	RD1/4PX1KJ	CARBON FILM RESISTOR
C101	2007931	TP050F103Z	CERAMIC CAPACITOR
C102	0687677	CC45CH1H151JF	CERAMIC CAPACITOR
C103	0150622	CC45CH1H220JF	CERAMIC CAPACITOR
C104	0687677	CC45CH1H151JF	CERAMIC CAPACITOR
C107	2007931	TP050F103Z	CERAMIC CAPACITOR
C108	2007931	TP050F103Z	CERAMIC CAPACITOR
C109	2007931	TP050F103Z	CERAMIC CAPACITOR
C110	2007931	TP050F103Z	CERAMIC CAPACITOR
C111	2007931	TP050F103Z	CERAMIC CAPACITOR
C112	2007931	TP050F103Z	CERAMIC CAPACITOR
C113	2007938	UP050F473Z	CERAMIC CAPACITOR
C114	2007938	UP050F473Z	CERAMIC CAPACITOR
C115	2007938	UP050F473Z	CERAMIC CAPACITOR
C117	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C118	2007938	UP050F473Z	CERAMIC CAPACITOR
C119	2007938	UP050F473Z	CERAMIC CAPACITOR
C120	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C121	2007924	EP050X222M	CERAMIC CAPACITOR
C122	2008071	CE04W1H1MF	ELECTRIC CAPACITOR
C123	2007966	UP050F104Z	CERAMIC CAPACITOR
C124	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C125	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C126	1924842	CE04W1C101MF	ELECTRIC CAPACITOR
C127	1918125	CQ921M1H472JF	MYLAR CAPACITOR
C128	1918125	CQ921M1H472JF	MYLAR CAPACITOR
C129	1918125	CQ921M1H472JF	MYLAR CAPACITOR
C130	2008526	CQ921M1H183JF	MYLAR CAPACITOR
C131	2007938	UP050F473Z	CERAMIC CAPACITOR
C132	2007931	TP050F103Z	CERAMIC CAPACITOR
C133	2007931	TP050F103Z	CERAMIC CAPACITOR
C134	2007973	UP050B101K	CERAMIC CAPACITOR

Rep. No.	Part No.	Description	
C135	2007980	UP050CH150J	CERAMIC CAPACITOR
C136	2024717	H1606FCH360J	CERAMIC CAPACITOR
C137	0762873	CC45CH1H101JF	CERAMIC CAPACITOR
C138	2007917	EP050X182M	CERAMIC CAPACITOR
C140	2007938	UP050F473Z	CERAMIC CAPACITOR
C141	2007973	UP050B101K	CERAMIC CAPACITOR
C145	2007931	TP050F103Z	CERAMIC CAPACITOR
C147	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C148	2007938	UP050F473Z	CERAMIC CAPACITOR
C153	2007938	UP050F473Z	CERAMIC CAPACITOR
C154	2007805	UP050SL470J	CERAMIC CAPACITOR
C155	2007805	UP050SL470J	CERAMIC CAPACITOR
C156	2007938	UP050F473Z	CERAMIC CAPACITOR
C157	2007938	UP050F473Z	CERAMIC CAPACITOR
C158	2007938	UP050F473Z	CERAMIC CAPACITOR
C159	2007938	UP050F473Z	CERAMIC CAPACITOR
C160	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C161	2007924	EP050X222M	CERAMIC CAPACITOR
C162	2008071	CE04W1H1MF	ELECTRIC CAPACITOR
C163	2007938	UP050F473Z	CERAMIC CAPACITOR
C165	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C166	1918125	CQ921M1H472JF	MYLAR CAPACITOR
C168	2007938	UP050F473Z	CERAMIC CAPACITOR
C170	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C171	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C172	2007938	UP050F473Z	CERAMIC CAPACITOR
C173	2007938	UP050F473Z	CERAMIC CAPACITOR
C174	2007910	CE04W1H0R47MBP	BIPOLAR ELECTRIC CAPACITOR
C175	2007938	UP050F473Z	CERAMIC CAPACITOR
C176	2007938	UP050F473Z	CERAMIC CAPACITOR
C177	1949454	CE04W1E101MF	ELECTRIC CAPACITOR
C179	2007959	UP050SL300J	CERAMIC CAPACITOR
C180	2007959	UP050SL300J	CERAMIC CAPACITOR
C190	2007931	TP050F103Z	CERAMIC CAPACITOR
C191	1924842	CE04W1C101MF	ELECTRIC CAPACITOR
C192	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C201	1149733	CC45CH1H820JF	CERAMIC CAPACITOR
C202	2007819	CK45F1H681JF	CERAMIC CAPACITOR
C203	1924826	CE04W1C221MF	ELECTRIC CAPACITOR
C204	1949454	CE04W1E101MF	ELECTRIC CAPACITOR
C205	2007938	UP050F473Z	CERAMIC CAPACITOR
C206	2007938	UP050F473Z	CERAMIC CAPACITOR
C207	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C208	1924826	CE04W1C221MF	ELECTRIC CAPACITOR
C209	2007966	UP050F104Z	CERAMIC CAPACITOR
C210	2007966	UP050F104Z	CERAMIC CAPACITOR
C211	1924826	CE04W1C221MF	ELECTRIC CAPACITOR
C217	2007966	UP050F104Z	CERAMIC CAPACITOR
C218	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C219	2007938	UP050F473Z	CERAMIC CAPACITOR
C220	1924818	CE04W1C470MF	ELECTRIC CAPACITOR
C221	2008050	CE04W1V100MF	ELECTRIC CAPACITOR

Rep. No.	Part No.	Description	
C222	2008050	CE04W1V100MF	ELECTRIC CAPACITOR
C223	2008064	CE04W1H220MF	ELECTRIC CAPACITOR
C224	2007945	UP050B750K	CERAMIC CAPACITOR
C225	2008064	CE04W1H220MF	ELECTRIC CAPACITOR
C226	2008036	CE04W1C102MF	ELECTRIC CAPACITOR
C228	2007896	CE04W1H2R2MF	ELECTRIC CAPACITOR
C229	2007896	CE04W1H2R2MF	ELECTRIC CAPACITOR
C230	2007896	CE04W1H2R2MF	ELECTRIC CAPACITOR
C231	2007966	UP050F104Z	CERAMIC CAPACITOR
C232	1924877	CE04W1H101MF	ELECTRIC CAPACITOR
C233	2007987	UP050SL200J	CERAMIC CAPACITOR
C234	2007805	UP050SL470J	CERAMIC CAPACITOR
C235	2007959	UP050SL300J	CERAMIC CAPACITOR
C236	2007959	UP050SL300J	CERAMIC CAPACITOR
C237	2007889	CE04W1C220MF	ELECTRIC CAPACITOR
C239	2008036	CE04W1C102MF	ELECTRIC CAPACITOR
C241	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C243	2008036	CE04W1C102MF	ELECTRIC CAPACITOR
C244	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C245	2008043	CE04W1C100MF	ELECTRIC CAPACITOR
C246	2008043	CE04W1C100MF	ELECTRIC CAPACITOR
C248	0687677	CC45CH1H151JF	CERAMIC CAPACITOR
C249	2008463	CQ921M1H153JF	MYLAR CAPACITOR
C250	1918109	CQ921M1H102JF	MYLAR CAPACITOR
C251	2007966	UP050F104Z	CERAMIC CAPACITOR
C252	1918087	CQ921M1H104JF	MYLAR CAPACITOR
C253	1918087	CQ921M1H104JF	MYLAR CAPACITOR
C254	2007966	UP050F104Z	CERAMIC CAPACITOR
C255	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C256	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C257	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C258	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C259	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C260	2008057	CE04W1H100MF	ELECTRIC CAPACITOR
C262	1949454	CE04W1E101MF	ELECTRIC CAPACITOR
C263	2007966	UP050F104Z	CERAMIC CAPACITOR
C265	2007966	UP050F104Z	CERAMIC CAPACITOR
C266	2007966	UP050F104Z	CERAMIC CAPACITOR
C268	2007889	CE04W1C220MF	ELECTRIC CAPACITOR
C273	2008071	CE04W1H1MF	ELECTRIC CAPACITOR
C390	2008036	CE04W1C102MF	ELECTRIC CAPACITOR
C396	2008029	CE04W1H0R47MF	ELECTRIC CAPACITOR
C397	2008029	CE04W1H0R47MF	ELECTRIC CAPACITOR
C398	0762873	CC45CH1H101JF	CERAMIC CAPACITOR
C399	1924842	CE04W1C101MF	ELECTRIC CAPACITOR
C401	2007903	CE04W1H4R7MF	ELECTRIC CAPACITOR
C402	1924826	CE04W1C221MF	ELECTRIC CAPACITOR
C403	2007966	UP050F104Z	CERAMIC CAPACITOR
C404	2007966	UP050F104Z	CERAMIC CAPACITOR
C405	2007959	UP050SL300J	CERAMIC CAPACITOR
C406	2007959	UP050SL300J	CERAMIC CAPACITOR
C407	1918095	CQ921M1H473JF	MYLAR CAPACITOR

Rep. No.	Part No.	Description	
C408	2008050	CE04W1V100MF	ELECTRIC CAPACITOR
C501	2008085	CE04W2A220MF	ELECTRIC CAPACITOR
C502	2008085	CE04W2A220MF	ELECTRIC CAPACITOR
C503	2007966	UP050F104Z	CERAMIC CAPACITOR
C504	1924877	CE04W1H101MF	ELECTRIC CAPACITOR
C505	1924885	CE04W1H471MF	ELECTRIC CAPACITOR
C506	2007966	UP050F104Z	CERAMIC CAPACITOR
C507	1924885	CE04W1H471MF	ELECTRIC CAPACITOR
C508	2007966	UP050F104Z	CERAMIC CAPACITOR
C509	1924893	CE04W1V102MF	ELECTRIC CAPACITOR
C510	2007966	UP050F104Z	CERAMIC CAPACITOR
C511	1924893	CE04W1V102MF	ELECTRIC CAPACITOR
C512	2007966	UP050F104Z	CERAMIC CAPACITOR
C513	1924907	CE04W1E102MF	ELECTRIC CAPACITOR
C514	1924915	CE04W1V471MF	ELECTRIC CAPACITOR
C515	2007966	UP050F104Z	CERAMIC CAPACITOR
C516	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C517	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C518	2007966	UP050F104Z	CERAMIC CAPACITOR
C519	2007966	UP050F104Z	CERAMIC CAPACITOR
C520	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C521	2007966	UP050F104Z	CERAMIC CAPACITOR
C522	1924826	CE04W1C221MF	ELECTRIC CAPACITOR
C523	2007966	UP050F104Z	CERAMIC CAPACITOR
C524	1924869	CE04W1E221MF	ELECTRIC CAPACITOR
C550	2022414	CE04W2A0R47MF	ELECTRIC CAPACITOR
VR101	2007840	RH0615C22KB	VARIABLE RESISTOR
VR102	2007840	RH0615C22KB	VARIABLE RESISTOR
VR201	2007833	RH0615C471B	VARIABLE RESISTOR
VR202	1915657	RH0615C4.7KB	VARIABLE RESISTOR
VR401	1924796	RH0615C10KB	VARIABLE RESISTOR
F101	1916025	SFE10.7MJ-A	CERAMIC FILTER
F102	1916033	SFE10.7MA5-A	CERAMIC FILTER
F103	2003122	PG-F3306-000	CERAMIC FILTER
F201	2003178	PG-F3307-000	LPF
D101	0271055	1N4148	SILICON DIODE
D102	0271055	1N4148	SILICON DIODE
D103	0271055	1N4148	SILICON DIODE
D104	1695762	MV209	VARACTOR
D204	0271055	1N4148	SILICON DIODE
D207	0271055	1N4148	SILICON DIODE
D403	0271055	1N4148	SILICON DIODE
D404	2008533	UZ-4.3B	ZENER DIODE(1W)
D405	2008533	UZ-4.3B	ZENER DIODE(1W)
D408	0271055	1N4148	SILICON DIODE
D409	0271055	1N4148	SILICON DIODE
D410	0271055	1N4148	SILICON DIODE
D411	0271055	1N4148	SILICON DIODE
D501	0047678	1N4004	DIODE

Rep. No.	Part No.	Description	
D502	0047678	1N4004	DIODE
D503	0047678	1N4004	DIODE
D504	0047678	1N4004	DIODE
D505	0047678	1N4004	DIODE
D506	0047678	1N4004	DIODE
D507	0047678	1N4004	DIODE
D508	0047678	1N4004	DIODE
D509	0047678	1N4004	DIODE
D510	0047678	1N4004	DIODE
Z401	1920049	ERZ-C07DK470	Z.N.R
Z501	1920049	ERZ-C07DK470	Z.N.R
L101	1921649	LAL02TB3R3K	INDUCTOR
L102	1921673	LAL02TB220K	INDUCTOR
L103	1921649	LAL02TB3R3K	INDUCTOR
L104	2007994	LAL02TB101K	INDUCTOR
L106	2007994	LAL02TB101K	INDUCTOR
L107	1921703	LAL02TB2R2K	INDUCTOR
L108	2007994	LAL02TB101K	INDUCTOR
L111	2007994	LAL02TB101K	INDUCTOR
L120	2007994	LAL02TB101K	INDUCTOR
L121	2007994	LAL02TB101K	INDUCTOR
L130	2007994	LAL02TB101K	INDUCTOR
L203	2007994	LAL02TB101K	INDUCTOR
L204	2007994	LAL02TB101K	INDUCTOR
L205	1921673	LAL02TB220K	INDUCTOR
L206	2007994	LAL02TB101K	INDUCTOR
L207	2007994	LAL02TB101K	INDUCTOR
L401	2007994	LAL02TB101K	INDUCTOR
Q101	1916173	2SC1740SR	TR
Q102	1916262	MFE211	FET
Q103	1916246	MPS3904	TR
Q104	2002996	KSR1205	TR
Q105	1916173	2SC1740SR	TR
Q109	2002996	KSR1205	TR
Q110	2002996	KSR1205	TR
Q201	1916173	2SC1740SR	TR
Q202	1916165	2SA933SR	TR
Q203	1916173	2SC1740SR	TR
Q204	1916173	2SC1740SR	TR
Q205	1916173	2SC1740SR	TR
Q206	1916173	2SC1740SR	TR
Q207	1916173	2SC1740SR	TR
Q208	1916173	2SC1740SR	TR
Q209	1916173	2SC1740SR	TR
Q210	1916173	2SC1740SR	TR
Q211	1916246	MPS3904	TR
Q212	1916203	MPS3906	TR
Q213	1916173	2SC1740SR	TR
Q214	1916173	2SC1740SR	TR
Q216	1916173	2SC1740SR	TR

Rep. No.	Part No.	Description	
Q217	1916173	2SC1740SR	TR
Q218	1916173	2SC1740SR	TR
Q219	1916173	2SC1740SR	TR
Q220	1916173	2SC1740SR	TR
Q221	1916173	2SC1740SR	TR
Q222	2002996	KSR1205	TR
Q223	2002996	KSR1205	TR
Q225	2002996	KSR1205	TR
Q226	1916203	MPS3906	TR
Q227	1916203	MPS3906	TR
Q228	1916173	2SC1740SR	TR
Q229	1916173	2SC1740SR	TR
Q300	1916173	2SC1740SR	TR
Q401	2002996	KSR1205	TR
Q402	2002996	KSR1205	TR
Q403	1916203	MPS3906	TR
Q406	1916238	MPS2907A	TR
Q407	1916254	MPS2222A	TR
Q408	2002996	KSR1205	TR
Q409	2002996	KSR1205	TR
Q502	2002996	KSR1205	TR
Q503	2002996	KSR1205	TR
Q504	0377341	TIP32C POWER	TR
Q505	1916246	MPS3904	TR
Q506	0377341	TIP32C POWER	TR
Q507	1916246	MPS3904	TR
Q508	2002996	KSR1205	TR
Q530	0377341	TIP32C POWER	TR
QL101	2003087	PG-L3132-000	QUADRATURE COIL
QL102	2003087	PG-L3132-000	QUADRATURE COIL
IC101	1921738	KA22441	IC
IC102	1921738	KA22441	IC
IC103	1980289	GD4052BC	IC
IC104	2003640	LC7215F	IC
IC106	1916092	LM324AN	IC
IC201	1980289	GD4052BC	IC
IC202	2007861	MC1733	IC
IC203	2007854	UPD6450CX-002	IC
IC204	2001022	GD4053BC	IC
IC205	2003647	TC9154AP	IC
IC209	1916092	LM324AN	IC
IC210	0242659	LM339N	IC
IC211	1916092	LM324AN	IC
IC401	1916092	LM324AN	IC
IC420	2008099	X24C04P	IC
IC430	2008470	MC68HC05C9	IC
IC501	1719823	GL7824	IC
IC502	1916114	L200CV	IC
IC503	0800503	GL7812	IC
IC505	0800473	GL7805	IC

Rep. No.	Part No.	Description	
IC506	0800473	GL7805	IC
IC507	2007868	LM7905	IC
CON201	2007882	WIBP-11S-25T	11'S CONNECTOR
CON202	2008092	WIBP-4S-25T	4'S CONNECTOR
CON401	2007875	WIBP-10S-25T	10'S CONNECTOR
CON501	1921797	FLH-S7T	POWER CONNNECTOR
XT101	2003129	PG-X3316-000	X-TAL
XT201	2003136	PG-X3317-000	X-TAL
XT401	1921843	PG-X3004-000	X-TAL

532-A19024-0A00 TUNER PCB ASS'Y

Rep. No.	Part No.	Description	
R701	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R702	1724134	RD1/8PX1KJ	CARBON FILM RESISTOR
R703	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
R704	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R705	1932675	RD1/8PX4.7KJ	CARBON FILM RESISTOR
R706	1932446	RD1/8PX2.2KJ	CARBON FILM RESISTOR
L701	2007994	LAL02TB101K	INDUCTOR
C701	2007966	UP050F104Z	CERAMIC CAPACITOR
C702	2007966	UP050F104Z	CERAMIC CAPACITOR
C703	2007931	TP050F103Z	CERAMIC CAPACITOR
C704	2007966	UP050F104Z	CERAMIC CAPACITOR
C705	2007903	CE04W1H4R7MF	ELECTRIC CAPACITOR
C706	1937359	CE04W1H4R7MBP	BIPOLAR ELECTRIC CAPACITOR
IC701	0487562	LM358N	IC
IC702	1916076	MC145155-P2	IC
WIR701	2003157	PG-W3168-000	11P WIRE ASS'Y
WIR702	2003164	PG-W3169-000	4P WIRE ASS'Y
TU201	2022400	BSFA77G90	TUNER

079-A19023-0A00 FRONT PCB ASS'Y

Rep. No.	Part No.	Description	
R609	1932748	RD1/8PX47KJ	CARBON FILM RESISTOR
R610	1932748	RD1/8PX47KJ	CARBON FILM RESISTOR
R611	1932748	RD1/8PX47KJ	CARBON FILM RESISTOR
R612	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R613	1932713	RD1/8PX47J	CARBON FILM RESISTOR
R614	1933264	RD1/8PX22KJ	CARBON FILM RESISTOR

Rep. No.	Part No.	Description	
R615	1933302	RD1/8PX10KJ	CARBON FILM RESISTOR
R616	1932497	RD1/8PX220J	CARBON FILM RESISTOR
R617	1932497	RD1/8PX220J	CARBON FILM RESISTOR
Q604	1916203	MPS3906	TR
Q605	2002996	KSR1205	TR
Q606	2002996	KSR1205	TR
Q607	2002996	KSR1205	TR
D601	2008148	SPB25MVW3	TWO COLOR LED
C604	1949454	CE04W1E101MF	ELECTRIC CAPACITOR
C605	1949454	CE04W1E101MF	ELECTRIC CAPACITOR
SW601	1886703	KHH10902	TACK SWITCH
SW602	1886703	KHH10902	TACK SWITCH
SW603	1886703	KHH10902	TACK SWITCH
WIR601	2003150	PG-W3167-000	FRONT WIRE ASS'Y(10PIN)
S601	1967347	LTM9046A-3	PHOTO DIODE MODULE